



VRF

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INSTALLATION INSTRUCTIONS

VVCB Vertical Air Handler

VRF SYSTEMS -- Air Handler
507895-02
01/2019



THIS MANUAL MUST BE LEFT WITH THE OWNER FOR FUTURE REFERENCE

WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life.

Installation and service must be performed by a licensed professional HVAC installer, service agency or the gas supplier.

Failure to follow safety warnings and these instructions exactly could result in property damage, dangerous operation, serious injury, or death.

Any additions, changes, or conversions required in order for the appliance to satisfactorily meet the application needs must be made by a licensed professional HVAC installer (or equivalent) using factory-specified parts.

Do not use this system if any part has been under water. A flood-damaged appliance is extremely dangerous. Immediately call a licensed professional HVAC service technician (or equivalent) to inspect the system and to replace all controls and electrical parts that have been wet, or to replace the system, if deemed necessary.

CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

General

The VVCB air handler is designed for indoor installation only. As shipped, the unit is ready for installation in upflow and horizontal-right air discharge applications. Field-configurable for horizontal left-air discharge.

The unit has accessible electrical controls, refrigerant piping connections and an internally mounted expansion valve kit. This unit is also equipped with variable speed blower motor.

Refer to the Product Specification bulletin (EHB) for the proper use of these indoor units with specific heat pumps, heat recovery units, mode switching devices, branch pipes, line sets and controls.

These instructions are intended as a general guide and do not supersede local codes in any way. Consult authorities having jurisdiction before installation.

The air handler is shipped from the factory completely assembled. This unit is provided with flanges for connecting the supply plenum.

Shipping and Packing List

Check the components for shipping damage. If you find any damage, immediately contact the last carrier.

Package 1 of 1 contains the following:

- 1 - Assembled indoor unit
- 2 - Condensate plugs
- 2 - Rubber grommets
- 1 - Water level switch cable
- 1 - 5/8 to 1/2 adapter (VVCB012)
- 1 - 3/8 to 1/4 adapter (VVCB012)
- 1 - Installation manual
- 5 - Zip ties
- 1 - Plastic cable clamp & screw

IMPORTANT

The Clean Air Act of 1990 bans the intentional venting of refrigerant (CFCs, HCFCs and HFCs) as of July 1, 1992. Approved methods of recovery, recycling or reclaiming must be followed. Fines and/or incarceration may be levied for noncompliance. These units must be installed as a part of a matched system as specified in the Product Specifications (EHB) bulletin.

Safety Requirements

WARNING



ELECTRICAL SHOCK, FIRE, OR EXPLOSION HAZZARD.

Do not touch the unit or the controller if your hands are wet.

DO NOT spray water on the indoor unit for any reason.

Do not replace a fuse with a fuse of a different rating.

Do not use a jumper wire to replace a fuse. Do not insert your hands, tools or any other item into the air intake or air outlet at either the indoor or outdoor unit.

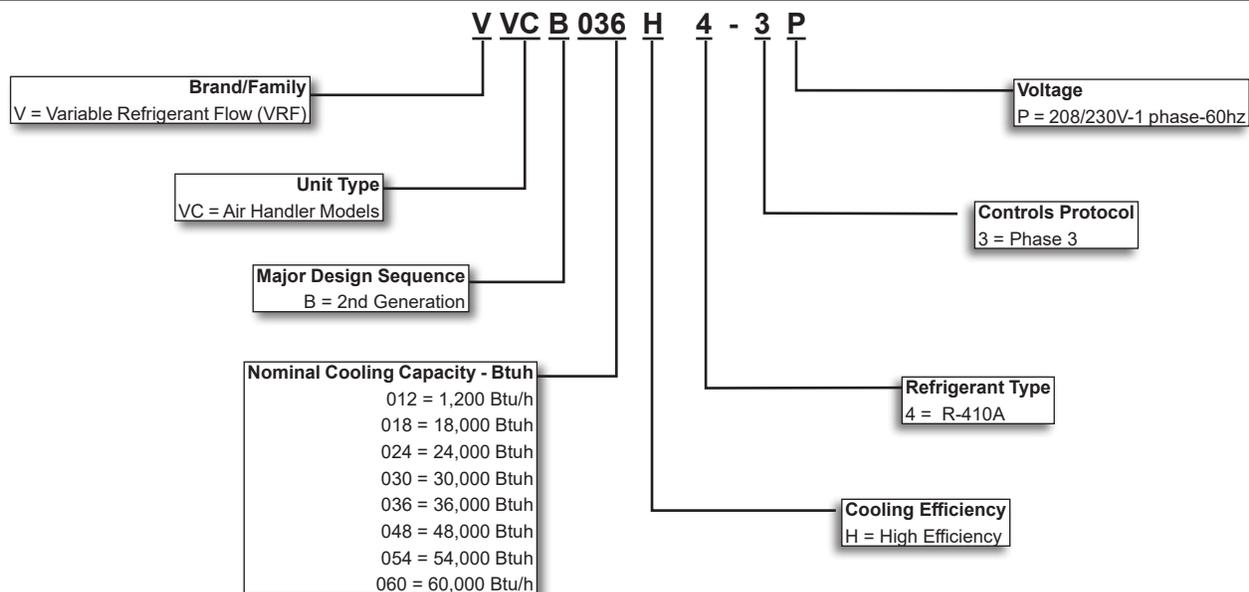
Do not allow children to operate the system.



CAUTION

To ensure proper system performance and reliability, Lennox does not recommend operation of VRF systems during any phase of construction. Construction debris, low temperatures, harmful vapors, and operation of the unit with misplaced filters can damage the units. Failure to follow these guidelines will result in the warranty being voided.

Model Number Identification



Note - Only Lennox VRF indoor units will work with Lennox VRF outdoor units and associated mechanical equipment. Lennox Mini Split indoor units are similar in appearance but must not be connected to a Lennox VRF refrigerant circuit. Please refer to model numbers to confirm compatibility. Model numbers for Lennox VRF units start with a "V" and model numbers for Lennox Mini-Splits start with a "M".

System Piping

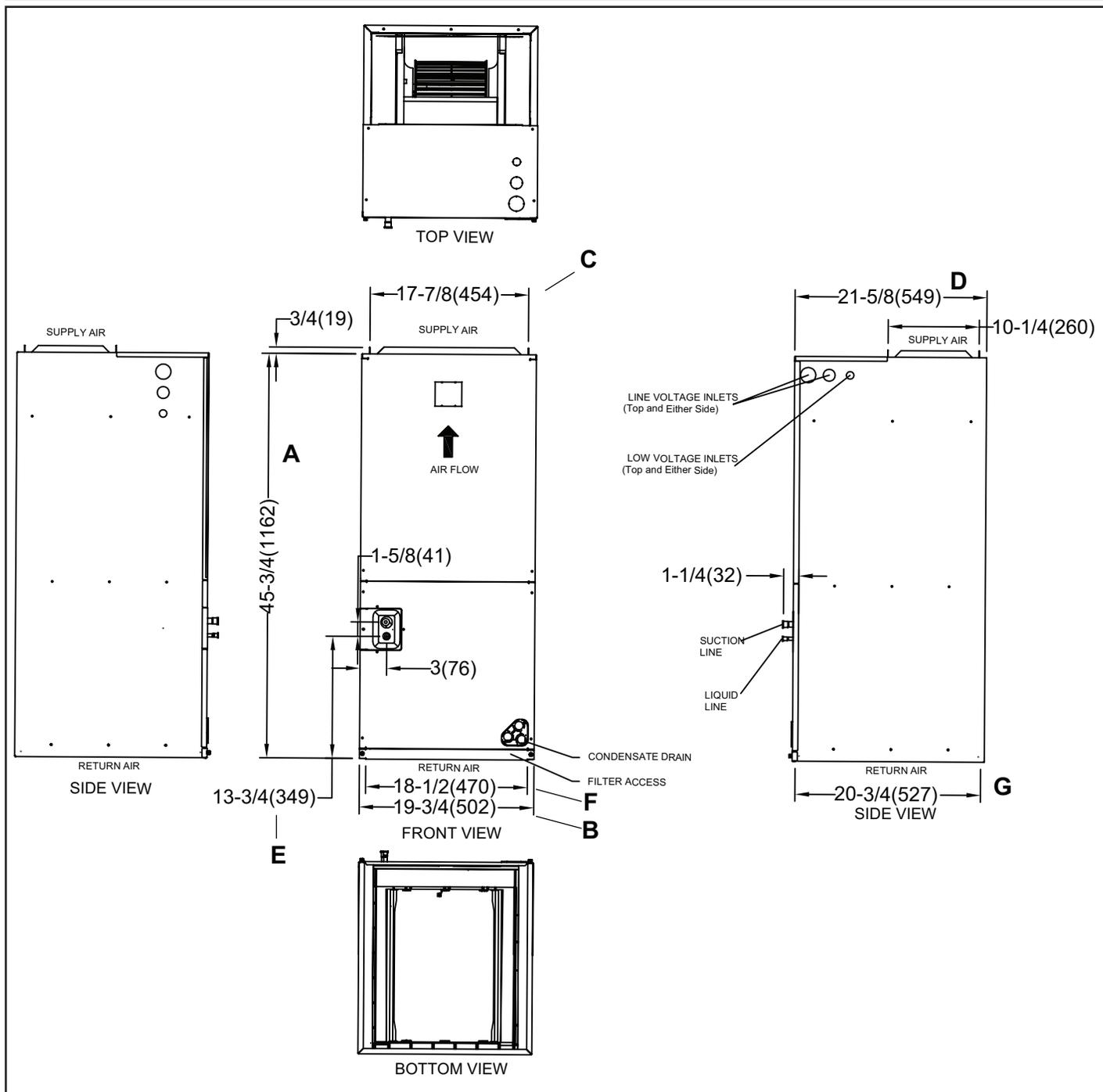
CAUTION

VRF system piping is customized for each installation. The LVSS (Lennox VRF Selection Software) piping report is an engineered design that must be followed. The piping diagram or diagrams included within the LVSS report have been prepared based on the information provided to the Lennox VRF applications department.

When the indicated lengths change from the figures stated within the report, it is imperative that prior to the commencement of the refrigerant pipe work installation, Lennox VRF applications department are informed of these proposed changes. Upon receipt of this new information the Lennox VRF applications department will confirm any changes that may be applicable to this installation. If changes are required, a new piping diagram will be produced and will supersede all other previously provided documents.

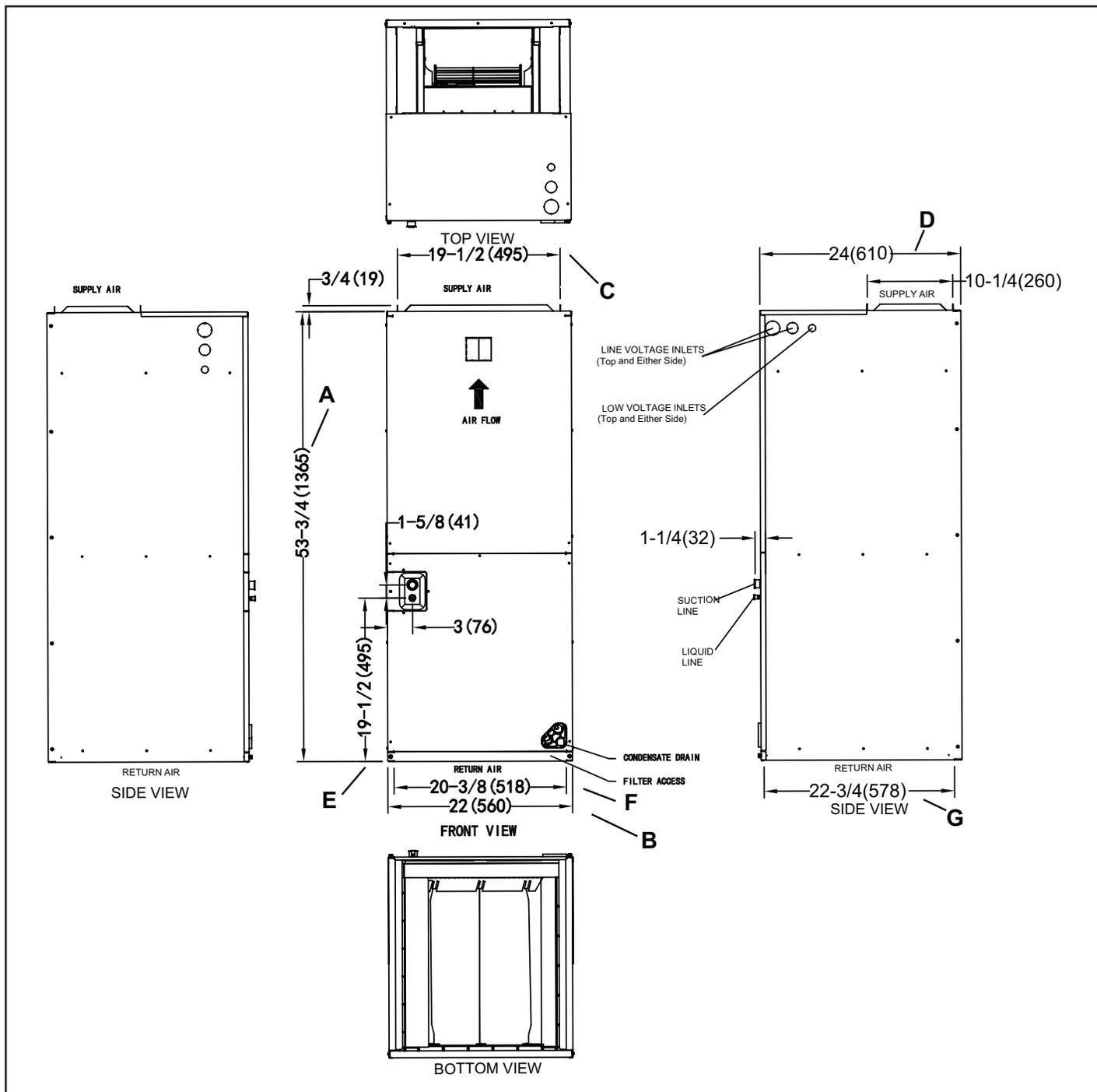
Failure to provide this information regarding changes to the original design may lead to insufficient capacity, equipment failure, warranty being made void and the refusal to commission the system.

Dimensions - inches (mm) Upflow Position Shown for Small Box 012-030



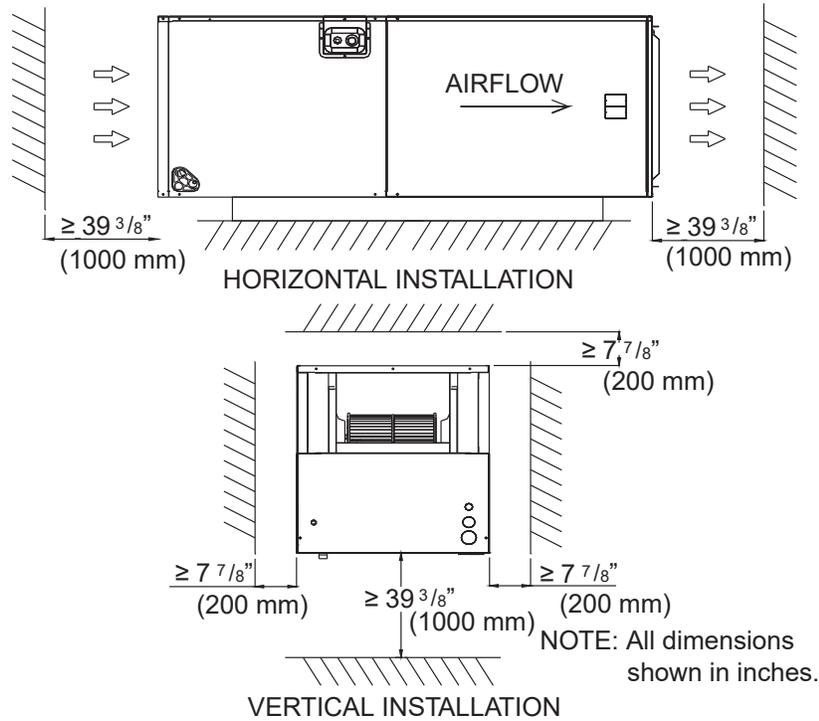
Dimension	012-030	
	inches	mm
A	45-3/4	1162
B	19-3/4	502
C	17-7/8	454
D	21-5/8	549
E	13-3/4	349
F	18-1/2	470
G	20-3/4	527

Dimensions - inches (mm) Upflow Position Shown for Big Box 036 - 060



Dimension	036-060	
	inches	mm
A	53-3/4	1365
B	22	560
C	19-1/2	495
D	24	610
E	19-1/2	495
F	20-3/8	518
G	22-3/4	578

Clearances



Note - Minimum front service access - 24 inches (610 mm) minimum.

Model No.	012-030	036-060
Cabinet	0 inch (0 mm)	0 inch (0 mm)
To Plenum	0 inch (0 mm)	0 inch (0 mm)
To Outlet Duct within 3 feet (914 mm)	0 inch (0 mm)	0 inch (0 mm)
Service / Maintenance	See note above.	

Figure 1. Clearances

Parts Identification

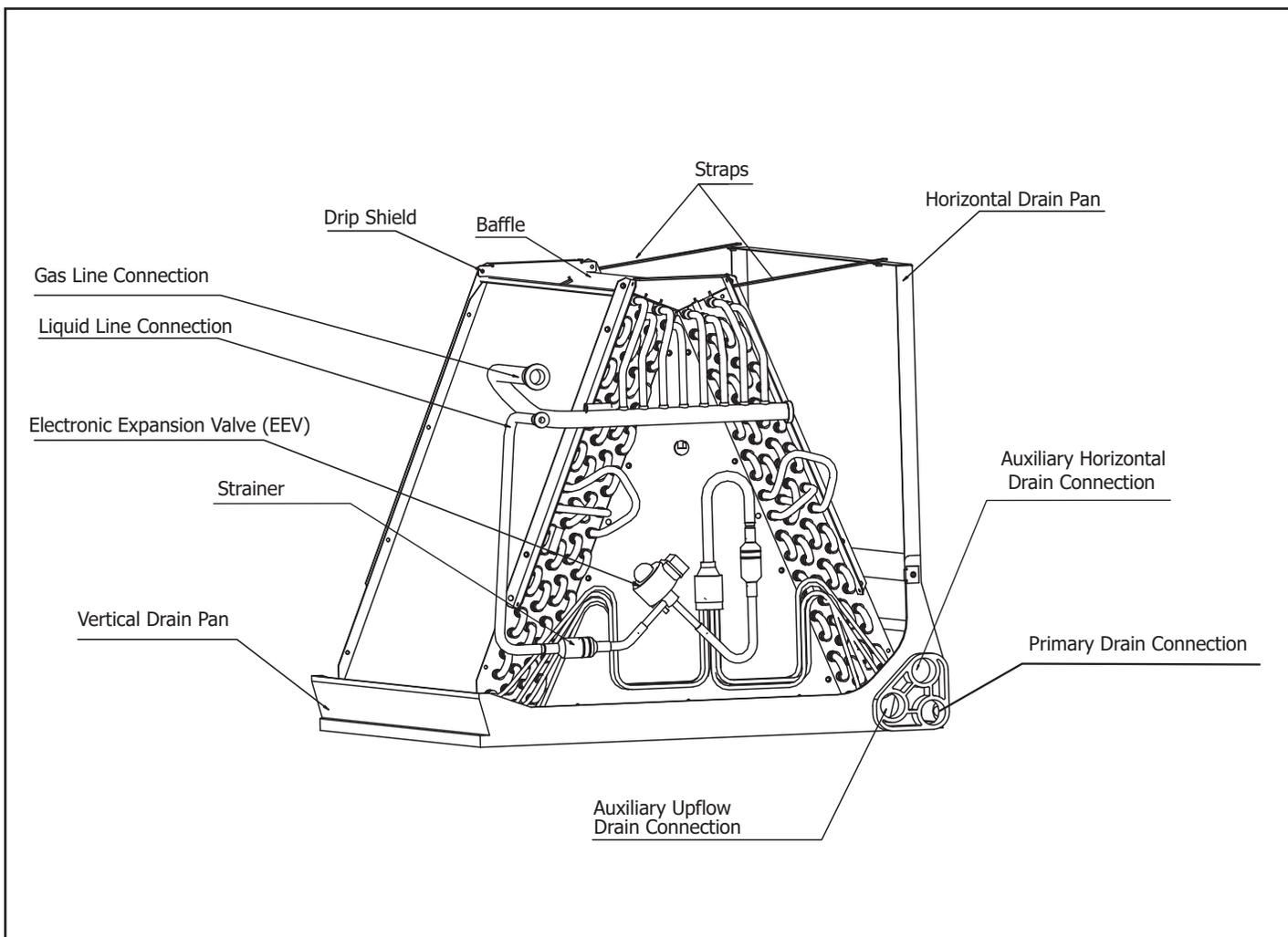


Figure 2. Parts Identification

Indoor Unit Placement

⚠ WARNING

Use the provided and specified components when installing equipment. Failure to do so may result in unit falling, water leaking or electrical shocks, causing personal injury or equipment or property damage.

Check suitability of structure to which the unit support mechanism will be fixed to. If structure is not capable of carrying the weight of the unit, unit may fall causing personal injury or equipment damage.

Consider the possibility of earthquakes in your area when installing the equipment. If the unit is not correctly secured, it may fall, causing personal injury or equipment damage.

Safely dispose of packing materials, which include nails, wood and other sharp objects, as well as plastic wrapping. Children playing with plastic wrap or bags risk the danger of suffocation.

⚠ WARNING

Excessive Weight Hazard - Use two or more people when moving and installing the unit. Failure to do so can result in back or other type of injury.

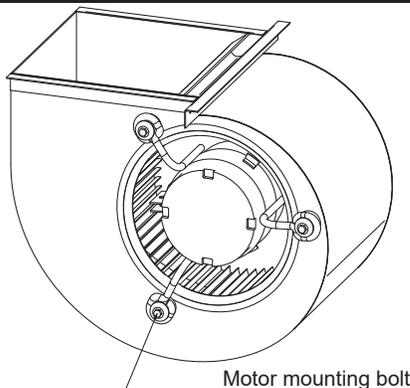
⚠ WARNING



Danger of explosion.
Keep flammable materials and vapors, such as gasoline, away from air handler.
Place air handler so that heating elements are at least 18 inches (46 cm) above the floor for a garage installation.
Failure to follow these instructions can result in death, explosion, or fire.

⚠ CAUTION

Make sure the blower motor support is tight (3-motor mount bolts) then check to see if wheel is secured to motor shaft before operating unit.



⚠ CAUTION

Do not place items which may be damaged by water under or around the indoor unit.

⚠ IMPORTANT

This unit is approved for installation clearance to combustible material as stated on the unit rating plate. Accessibility and service clearances must take precedence over combustible material clearances.

Excessive condensation may occur if the unit is installed in a warm, humid place. When the unit is installed in an unconditioned space, apply sealant around electrical wires, refrigerant piping and condensate lines at the point where they enter the cabinet.

Apply sealant on the inside of the cabinet at the point where the electrical wires exit through the conduit opening.

Sealing the cabinet in this way prevents warm, moist, unconditioned air from entering the cabinet. Warm, moist air in the cabinet forms condensate on the cooler control box and electrical controls.

The air handler must be installed so that free access is allowed to the coil/filter compartment and blower/control compartment.

AVOID

Do not install the unit in the following locations:

- Areas exposed to petrochemicals or petrochemical products
- Areas exposed to salt or other corrosive materials or caustic gasses
- Areas exposed to extreme voltage variations (such as factories)
- Tightly enclosed areas that may impede service of the unit
- Areas exposed to fossil fuels (such as oil or gas in kitchens)
- Areas exposed to strong electromagnetic forces
- Areas exposed to acids or alkaline detergents (laundry rooms)

DO:

- Locate the unit so that it is not exposed to direct sunlight
- Ensure the structural wall, floor, or ceiling can support the weight of the unit.
- Select a location where condensate line will have the shortest run to a suitable drain per local codes.
- Allow sufficient space around unit for proper operation and maintenance
- Install unit a minimum of 3 feet away from any antenna, power cord (line) radio, telephone, security system, or intercom. Electrical interference and radio frequencies from any of these sources may affect operation
- Be sure to instruct customers how to properly operate the unit (especially maintenance of air filter, and operation procedure) by having them carry out operations themselves while looking at the manual provided with the controller.

Installation

It is important to locate the unit where it can be accessed for service in the future. Refer to unit dimensions on Page 3 for exact locations of suspension brackets, return air and supply air openings.

- Make sure that the structural ceiling is able to support the weight of the indoor unit. It may be necessary to add extra support.
- Install suspension rods in the structural ceiling or concrete slab in a suitable location.
- If the structural ceiling is constructed of concrete, install anchors to accept four $\frac{3}{8}$ " threaded rods to suspend the indoor unit. If the structural ceiling includes wooden joists, use angle iron or Unistrut channel fixed securely in place to accept the $\frac{3}{8}$ " threaded rods. See Figure 3.

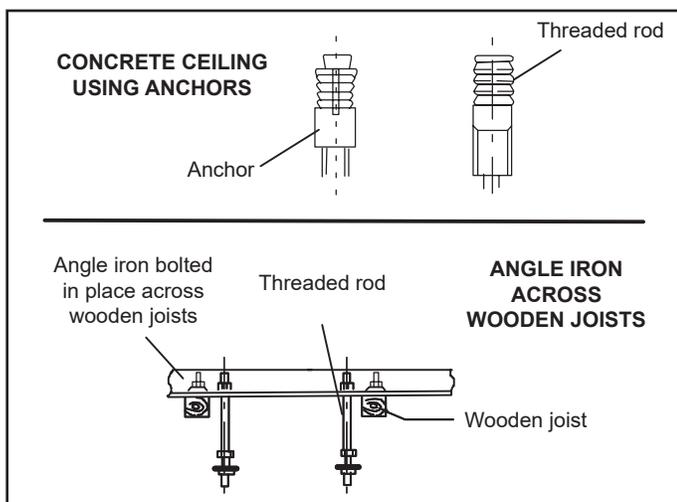


Figure 3. Locate Threaded Rods

- Use either a mechanical lifting device or a minimum of two people to raise the unit.
- If necessary, install a field-provided isolation grommet to prevent transmission of vibration from unit to structural ceiling.
- If the unit is being installed in an application that includes a sheet rock (plasterboard) ceiling, a requirement for the warranty program is that it is installed with an access panel in a suitable location to allow final connection of the refrigerant piping, condensate line and electrical connections. This will also allow access for future maintenance.
- For ease of installation, it is best to make any necessary coil configuration changes before setting the air handler in place.

Position the Unit

! DANGER

Units must not be installed where they may be exposed to potentially explosive or flammable atmosphere. If this instruction is not followed exactly, a fire or explosion may result, causing property damage, injury, or death.

Install the unit in a location that meets the following requirements:

- Allow adequate space for installation, service clearance, piping and electrical connections, and necessary ductwork. For specific unit dimensions, allow clearance according to local and national codes.
- Unit can be installed standing vertically on a field-provided stand. A stand is always required to support the weight of the unit.
- Unit can also be installed horizontally, either resting on a field-provided stand or suspended from the ceiling. If suspended, confirm that the ceiling is able to support the weight of the unit.
- If the unit is to be installed over a finished ceiling and/or living area, building codes may require a field-supplied secondary condensate drain pan to be installed under the entire unit. Consult local codes inspector for additional information. See Figure 5.
- Select the unit position with the following points in mind:
 - The unit should be installed on a structure that is suitable to support the total weight of the unit, refrigerant piping and condensate.
 - Proper access should be provided for maintenance for refrigerant piping, electronic expansion valve (EEV), electrical box, and condensate pump. See the Clearances section for minimum clearances all around the unit.
 - The unit should not be positioned close to a wall or similar obstruction, or in a position where the discharge air could blow directly on the controller.
 - The unit should not be positioned directly above any obstruction.
 - Make sure the unit is sloped (similar to the slope shown in Figure 14) (horizontal or vertical) so that the drain pan will empty completely without water standing in the pan.
 - The condensate drain should have sufficient downward slope (1 in. per 100 in.) in any horizontal run between unit and drain.

! IMPORTANT

If installed on the ceiling, be sure that the ceiling grid is supported separately from the unit. The ceiling grid must not be supported by any part of the unit, grille, or any associated wiring or piping work.

CAUTION

Do not place items which may be damaged by water under or around the indoor unit.

Upflow Application

1. The air handler must be supported on the bottom only and set on a suitable base or a field-supplied support frame. Securely attach the air handler to the floor or support frame.
2. If installing a unit in an vertical application, remove the horizontal drain pan.
3. Place the unit in the desired location and properly slope the unit, see page 12. Connect the return and supply air plenums as required using sheet metal screws.
4. Determine knockouts required for drain line connections.
5. With access door removed, remove drain line opening to install drain lines.
6. If the unit is intended to be used with an "open" return air path, ensure there is at least 14" of clearance below the unit.

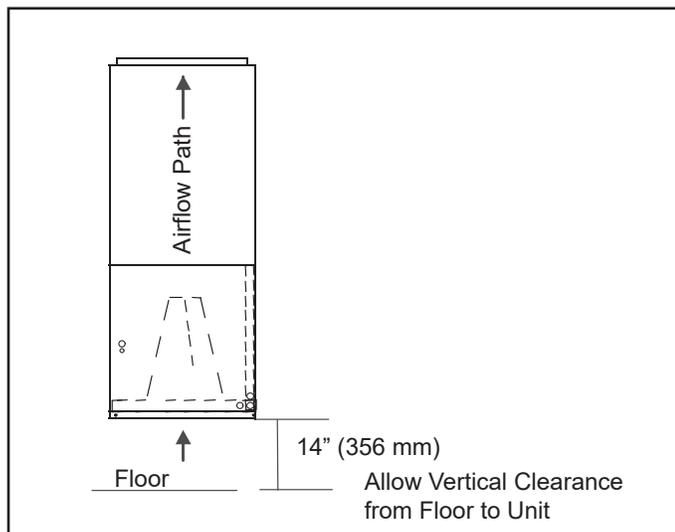


Figure 4. Upflow Configuration

Horizontal Application

1. Determine knockouts required for drain line connections.
2. With access door removed, remove drain line opening to install drain lines.
3. Set unit so that it is sloped toward the end of the unit with the drain pan. See Figure 14.
4. A typical horizontal configuration is shown in Figure 5.
5. If the unit is suspended, the entire length of the cabinet must be supported. If you use threaded rod, use a piece of angle iron or Unistrut channel attached to the unit (either above or below) to support the length of the cabinet. Use field-supplied 3/8 threaded nylon-lock nuts and bolts **no longer than 1/2 inch** to avoid damaging the coil or filter. Use sheet metal screws to connect the return and supply air plenums as required.

IMPORTANT

When removing the coil, there is a possibility of equipment damage and personal injury. Be careful when removing the coil assemble from a unit installed horizontal. The coil may tip into the drain pan once it is clear of the cabinet. Support the coil when removing it.

IMPORTANT

The horizontal drain pan is not required in vertical upflow air discharge installations. It must be removed to provide the best efficiency and air flow.

- **NOTE** - When the unit is installed in horizontal applications, a secondary drain pan is recommended. Refer to local codes. Adequate support must be provided to ensure cabinet integrity. Ensure that there is adequate room to remove service and access panels if installing in the horizontal position.

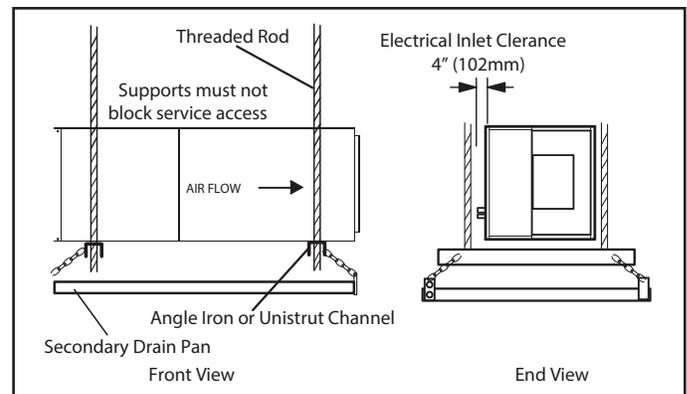


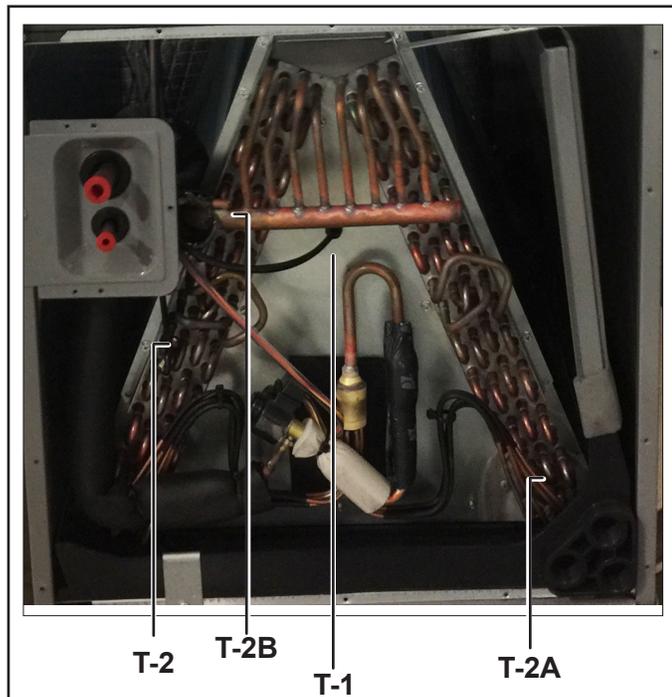
Figure 5. Suspending Horizontal Unit

Horizontal-Left Conversion

1. Remove the top panel and the blower section panel.
2. Remove the T-2, T-2A and T-2B sensors from the sleeves. The sensors look similar; label the sensors so that they can be reinstalled to the proper locations. T-2 Sensor black cable, no overlay. T-2A and T-2B Sensor clear overlay on black cable.
3. Remove the EEV motor from the EEV body.

Table 1. Coil Sensor Identification

Sensor	Description
T1	Return Air (room) Sensor
T2	Middle of Coil Sensor
T2A	Entering Coil (inlet) Sensor
T2B	Leaving Coil (outlet) Sensor



**Figure 6. T1, T-2 and T2B Factory Installed Sensor Locations
(Vertical Upflow and Horizontal-Right Configuration Shown)**

4. Remove the T1 sensor from the factory-provided hole in the coil housing. The sensor will not be positioned back inside of coil housing.
5. Slide the coil assembly out of the cabinet. Place coil on sturdy surface.
6. Remove T1 sensor knockout. See Figure 7.



Figure 7. Remove T1 Sensor Knockout

7. Insert a rubber grommet into the hole.
8. Position cabinet in the horizontal-left orientation on a sturdy work surface.



Figure 8. Position Cabinet in Horizontal Left Orientation

9. Rotate Coil 180° and re-insert into coil compartment so that the bottom (underside) of coil faces blower.
10. Disconnect the sensor wiring harness in the control box (blue plug) and prepare to reroute it to allow for connection to the sensors in their new locations.
11. Release the wiring harness clips and ties. Carefully remove the wiring harness.
12. Insert the wiring harness plug into the hole you cut into the coil front plate.

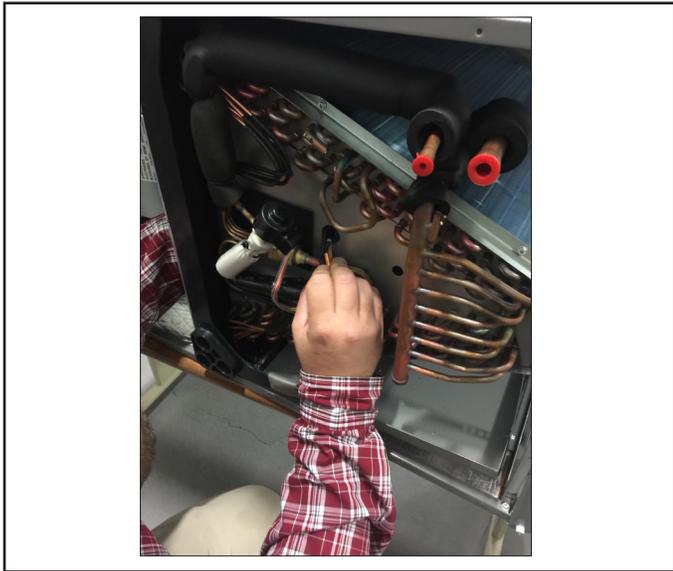


Figure 9. Coil Rotated 180°

13. Reinstall the EEV motor.
14. Route wiring harness through coil, past the blower and into the electrical box. Do not pinch or bind wires.

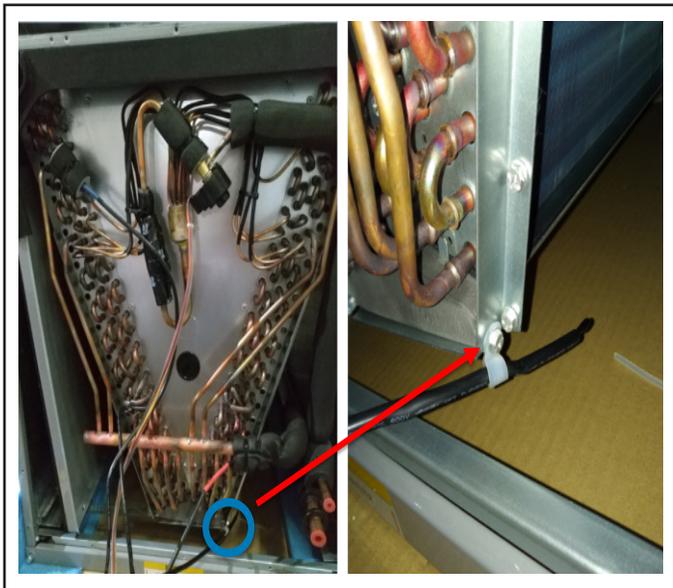


Figure 10. Secure Wire Harness with Clip

15. Relocate T-1 Sensor to be downstream of the coil to sense room air temperature.
16. Secure T-1 sensor to top of coil. See Figure 10.
17. Re-secure the wiring harness using clips and wire ties. Do not pinch or bind wires.
18. Reconnect the T2 and T2B sensors.
19. Reconnect the wire harness plug inside of electrical control box.

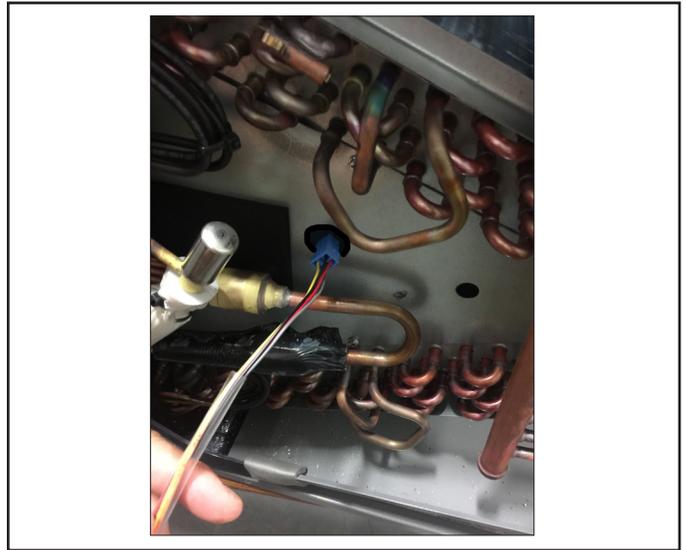


Figure 11. Route Wiring Harness Through Coil and Into Electrical Compartment

20. Turn the coil compartment cover 180° and reattach to the unit cabinet.



Figure 12. Relocate T-1 Sensor

21. Reattach the blower compartment panel.

Refrigerant Piping Connections

WARNING

Refrigerant leaks are unlikely; however, if a refrigerant leak occurs, open a door or windows to dilute the refrigerant in the room. Turn off the unit and all other appliances that may cause a spark. Call a licensed professional HVAC technician (or equivalent) to repair the leak.

Use only R410A refrigerant to charge this system. Use of other refrigerant or gas will damage the equipment.

Do not allow air or other contaminants to enter system during installation of refrigerant piping. Contaminants will result in lower system capacity and abnormally high operating pressures and may result in system failure or explosion.

Insulate all refrigerant piping.

Refrigerant pipes may be very hot during unit operation.

Do not allow contact between wiring and bare copper pipes.

After refrigerant piping connections have been completed, check the system for leaks per commissioning instructions.

IMPORTANT

The compressor in the unit this air handler is matched with contains PVE oil (Polyvinyl ether). PVE oil is formulated for hydrofluorocarbon (HFC) refrigerants, such as R410A, which this system contains. While it may have some miscibility properties with mineral-based oil and POE oil (Polyolester), it is not recommended to mix PVE oil with any other type of refrigerant oil.

Field provided piping consists of two HVAC/R rated copper lines connected to the indoor unit.

Final equipment connections must be brazed connections. Compression or other types of fittings are not permitted for final connections.

Table 2. Refrigerant Piping Connections

Size (Btuh)	Liquid Line	Vapor Line
VVCB012	1/4"	1/2"
VVCB018-054	3/8"	5/8"
VVCB060	3/8"	7/8"

Brazing Refrigerant Lines

Refrigerant lines must be connected by a qualified technician in accordance with established procedures.

WARNING



Danger of fire. Bleeding the refrigerant charge from only the high side may result in pressurization of the low side shell and suction tubing. Application of a brazing torch to a pressurized system may result in ignition of the refrigerant and oil mixture. Check the high and low pressures before applying heat.

CAUTION

Brazing alloys and flux contain materials which are hazardous to your health.

Avoid breathing vapors or fumes from brazing operations. Perform operations only in well-ventilated areas.

Wear gloves and protective goggles or face shield to protect against burns.

Wash hands with soap and water after handling brazing alloys and flux.

CAUTION

Purge low pressure nitrogen [1 to 2 psig (6.0 to 12.8 kPA)] through the refrigerant piping during brazing. This will help to prevent oxidation and the introduction of moisture into a system.

To prevent the build-up of high levels of nitrogen when purging be sure it is done in a well ventilated area.

IMPORTANT

Refrigerant lines must be clean, dry, refrigerant-grade copper lines. Air handler coils should be installed only with specified line sizes for approved system combinations.

Handle refrigerant lines gently during the installation process. Sharp bends or kinks in the lines will cause restrictions.

IMPORTANT

Only use brazing rods/sticks which are suitable/recommended for air conditioning pipework installations
- Do Not Use Soft Solder.

1. The seal on the unit refrigerant piping connections should remain in place until the last possible moment. This will prevent dust or moisture from getting into the refrigerant piping before it is connected.
2. To avoid damaging the rubber grommets in the cabinet while brazing, slide the rubber grommets over the refrigerant lines until they are away from the heat source.
3. Remove rubber plug from both liquid and gas lines or cut pipework tails to suit field installation conditions
4. Connect the liquid and gas lines to the evaporator coil.
5. Place a wet rag against piping plate and around the line connections. **Take care to protect the cabinet and internal components.**
6. Ensure nitrogen is flowing at all times during the brazing process.
7. Braze connections. Allow pipe to cool before removing wet rag.
8. Reinstall the rubber grommets into the refrigerant piping panel.
9. Insulate both pipes individually.

Sealing the Unit

Seal the unit so that warm air is not allowed into the cabinet. Warm air introduces moisture, which results in water blow-off problems.

This is especially important when the unit is installed in an unconditioned area.

If installed in an unconditioned space, sealant should be applied around the electrical wires, refrigerant tubing, and condensate lines where they enter the cabinet.

WARNING

There must be an air-tight seal between the bottom of the air handler and the return air plenum. Use fiberglass sealing strips, caulking, or equivalent sealing method between the plenum and the air handler cabinet to ensure a tight seal. Return air must not be drawn from a room where this air handler or any gas-fueled appliance (i.e. water heater) or carbon monoxide-producing device (i.e. wood fireplace) is installed.

Condensate Piping Connections

The air handler is provided with 3/4" NPT condensate drain connections.

! CAUTION

Make sure that drain piping is properly routed and insulated in order to prevent both leaks and condensation. Follow these instructions exactly to ensure proper drainage and unit operation.

! IMPORTANT

Drain should have a slope of at least 1/4 inch per foot and should be approved corrosion-resistant pipe. You must confirm operation of every drain and pump in the system as part of the commissioning procedure.

! IMPORTANT

A field-fabricated secondary drain pan, with a drain pipe to the outside of the building, is required in all installations over a finished living space or any area that may be damaged by overflow from the main drain pan.

1. Install properly sized, field-provided connection fittings and connect primary drain line to the main drain pan connection (3/4" I.D.).
NOTE - When installing drain line connection fittings to the drain pan, hand tighten the fitting and use a thread sealant. Over-tightening the fittings can split connections on the drain pan.
2. If the secondary drain line is to be used, remove the plug or the knockout and route the drain line so that water draining from the outlet will be easily noticed by the user. Refer to local codes for drain trap requirements on the secondary drain line.
3. Check again to ensure drain ports and drain pan are free of all debris.
4. Plug and check any unused drain pan openings for tightness to prevent water leaks or seepage from the drain pan.
5. Install a 3" trap in the main (primary) drain lines as close to the unit as practical (see Figure 13). Make sure the top of the trap is below the connection to the drain pan to allow complete drainage of the pan.
NOTE - Horizontal runs must have an anti-siphon air vent (standpipe) installed ahead of the horizontal run. See Figure 13. An extremely long horizontal run may require an oversized drain line to eliminate air traps.
NOTE - Do not operate air handler without a trap in the main (primary) drain. The condensate drain is on the negative pressure side of the blower; therefore, air being pulled through the condensate line will not allow positive drainage without a proper trap.

6. Route the drain line to the outside or to an appropriate drain. Drain lines must be installed so they do not block service access to the front of the air handler. A 24" clearance is required for filter, coil, or blower removal and service access.
NOTE - Check local codes before connecting the drain line to an existing drainage system. Insulate the drain lines where sweating could cause water damage.
7. After the system installation is complete, the condensate drain line must be checked for leaks and proper drainage. If a field-provided condensate pump has been installed, it must be checked to ensure proper operation. This check is part of the commissioning sequence.

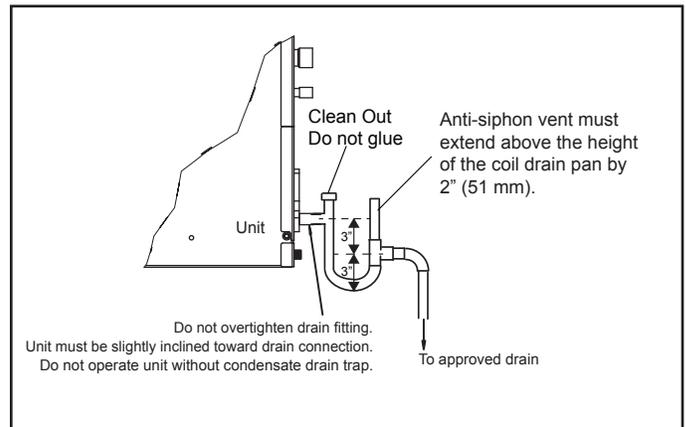


Figure 13. Condensate Drain Trap

! IMPORTANT

You must confirm operation of every drain and pump in the system as part of the commissioning procedure.

Using an External Water Level Switch

Disconnect the closed circuit loop, CN 5. Connect the water level switch cable accessory to CN 5. See unit wiring diagrams for location of CN 5.

The connection has 5 VDC current, do not supply field voltage.

Sloping The Unit

Make sure the unit is sloped (similar to the slope shown in Figure 14) (horizontal or vertical) so that the drain pan will empty completely without water standing in the pan.

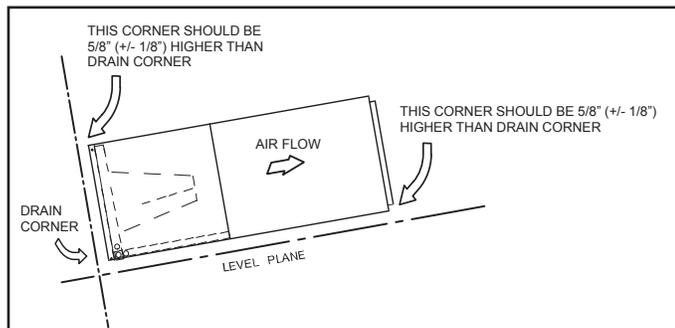


Figure 14. Sloping the Unit

Duct System

The air handler is provided with flanges for the connection of the supply plenum.

Supply and return duct system must be adequately sized to meet the system's air requirements and static pressure capabilities. Supply plenum should be the same size as the flanged opening provided around the blower outlet and should extend at least 3 ft. from the air handler before turning or branching off plenum into duct runs. The plenum forms an extension of the blower housing and minimizes air expansion losses from the blower.

Field installed duct must comply with the National Fire Protection Association NFPA 90A, NFPA 90B and any applicable local ordinance.

WARNING

Do not, under any circumstances, connect return duct to any other heat producing device such as fireplace insert, stove, etc. Unauthorized use of such of devices may result in fire, carbon monoxide poisoning, explosion, personal injury or property damage.

IMPORTANT

If an elbow is included in the plenum close to the unit, it must not be smaller than the dimensions of the supply duct flange on the unit.

The front glange on the return duct if connected to the blower casing must not be screwed into the area where the power wiring is located. Drills or sharp screw points can damage insulation on wires located inside unit.

Duct system must be designed within the range of external static pressure the unit is designed to operate against. It is important that the system airflow be adequate. Make sure supply and return duct, grills, special filters, accessories, etc. are accounted for in total resistance.

Supply plenum is attached to the 3/4" duct flanges supplied with the unit. Attach flanges around the blower outlet.

Secure the supply and return duct to the unit flanges, using proper fasteners for the type of duct used.

Installation Guidelines

- Install a field-provided isolation grommet to prevent transmission of vibration from unit to structural ceiling.
- Provide separate support for the weight of the duct system. Duct system must not be supported by the indoor unit.
- Use flexible joints (canvas) at the point where the duct connects to the unit on both ends. Material must meet all local and national code requirements.
- When unit is being installed in a location where even the slightest noise would be a problem (meeting room or other very quiet space), design duct system to avoid transmission of vibration to the structure to the extent possible.

Installing Duct System

- Connect supply air duct to the flange on top of the air handler. If an isolation connector is used, it must be nonflammable.
- When sizing the return air filter grille, a minimum surface area of 200 sq. in. per ton is recommended.

Wiring Connections

WARNING

Isolate the power supply before accessing unit electrical terminals.

Install unit so that unit disconnect is accessible.

Follow all local and national codes, as well as this installation instruction, during installation. Do NOT overload electrical circuit, as this may lead to failure and possible fire.

Use specified wiring and cable to make electrical connections. Clamp cables securely and make sure that connections are tight to avoid strain on wiring. Insecure wiring connections may result in equipment failure and risk of fire.

Wiring must be installed so that all cover plates can be securely closed.

In the U.S.A., wiring must conform with current local codes and the current National Electric Code (NEC). In Canada, wiring must conform with current local codes and the current Canadian Electrical Code (CEC).

Refer to unit nameplate for minimum circuit ampacity and maximum overcurrent protection size.

NOTE - 18 GA., 2-conductor, shielded control wire (polarity sensitive). All shields of shielded cable connect to GROUND terminal. This is necessary to ensure proper system communication and operation.

CAUTION

This unit must be properly grounded and protected by a circuit breaker. The ground wire for the unit must not be connected to a gas or water pipe, a lightning conductor or a telephone ground wire.

Do not connect power wires to the outdoor unit until all other wiring and piping connections have been completed.

Install all wiring at least 3 feet away from televisions, radios or other electronic devices in order to avoid the possibility of interference with the unit operation.

Do not install the unit near a lighting appliance that includes a ballast. The ballast may affect remote control operation.

1. Remove the screws that secure the control box cover. Remove the cover and place it to the side where it will not be damaged.
2. Locate the terminal strip in the control box. Connect the power wiring (sized per NEC/CEC and local codes) and communications cable (**two-core, shielded cable**). Refer to unit nameplate for rated voltage.
3. If the indoor unit is the final unit in a group that is wired in series, install the provided resistor across terminals P and Q.
4. The VVCB unit receiver/display must be field-connected and mounted. If it is necessary to position the receiver a distance from the unit, use the optional extension cable kit V0CTRL93P-1 (cat # 14R84).

IMPORTANT

DO NOT adjust DIP switch settings. Settings may only be adjusted by a trained technician as part of the commissioning procedures.

Indoor units and mode selection boxes on the same refrigeration circuit should have a common power supply but must have an independent disconnect switch installed adjacent to each item of equipment for servicing and

maintenance purposes. Indoor unit and mode selection box power supply MUST not be taken from the outdoor unit. Always follow NEC/CEC and Local Codes.

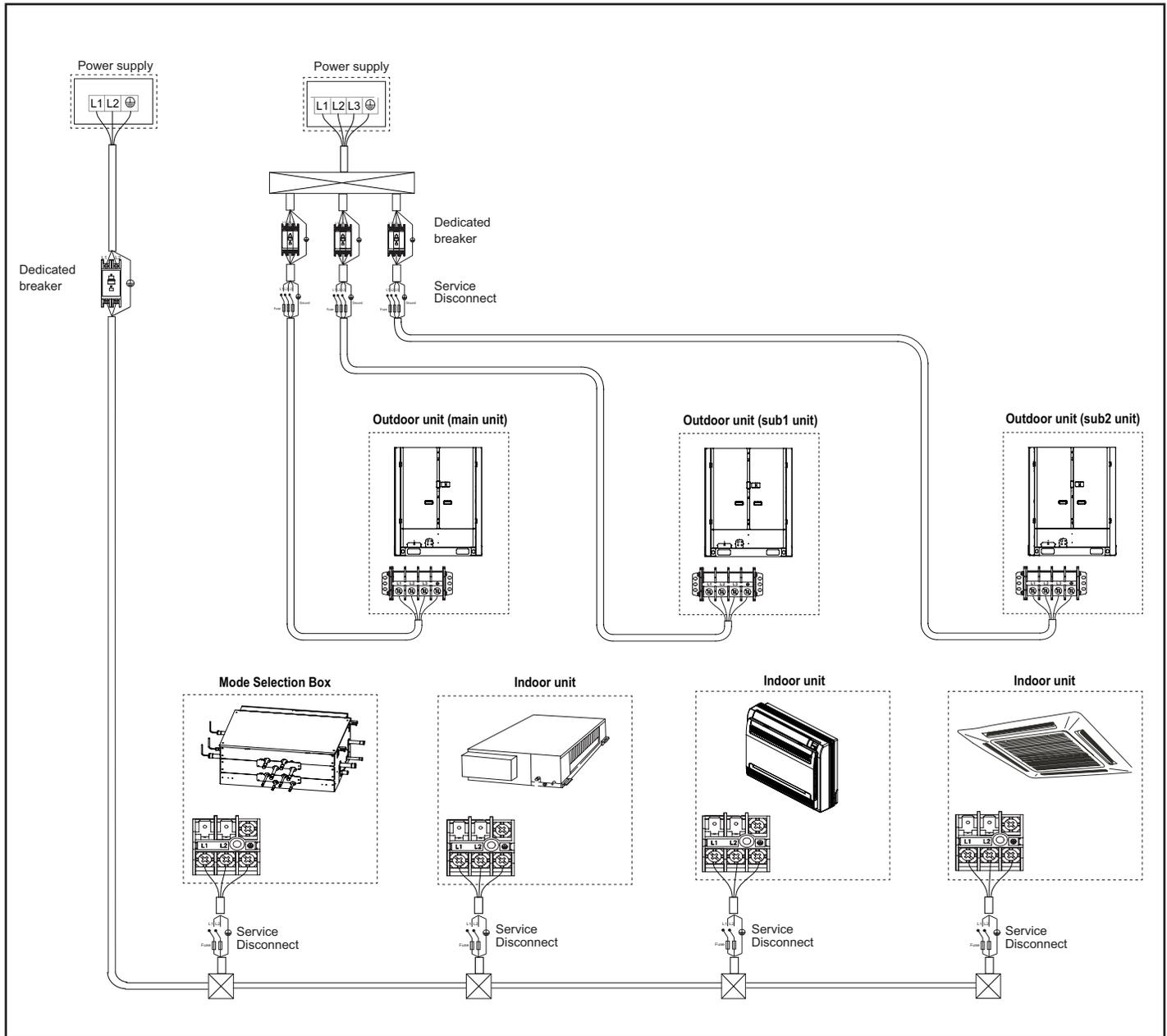


Figure 15. Typical Power Wiring Diagram (VRF Heat Recovery System Shown)

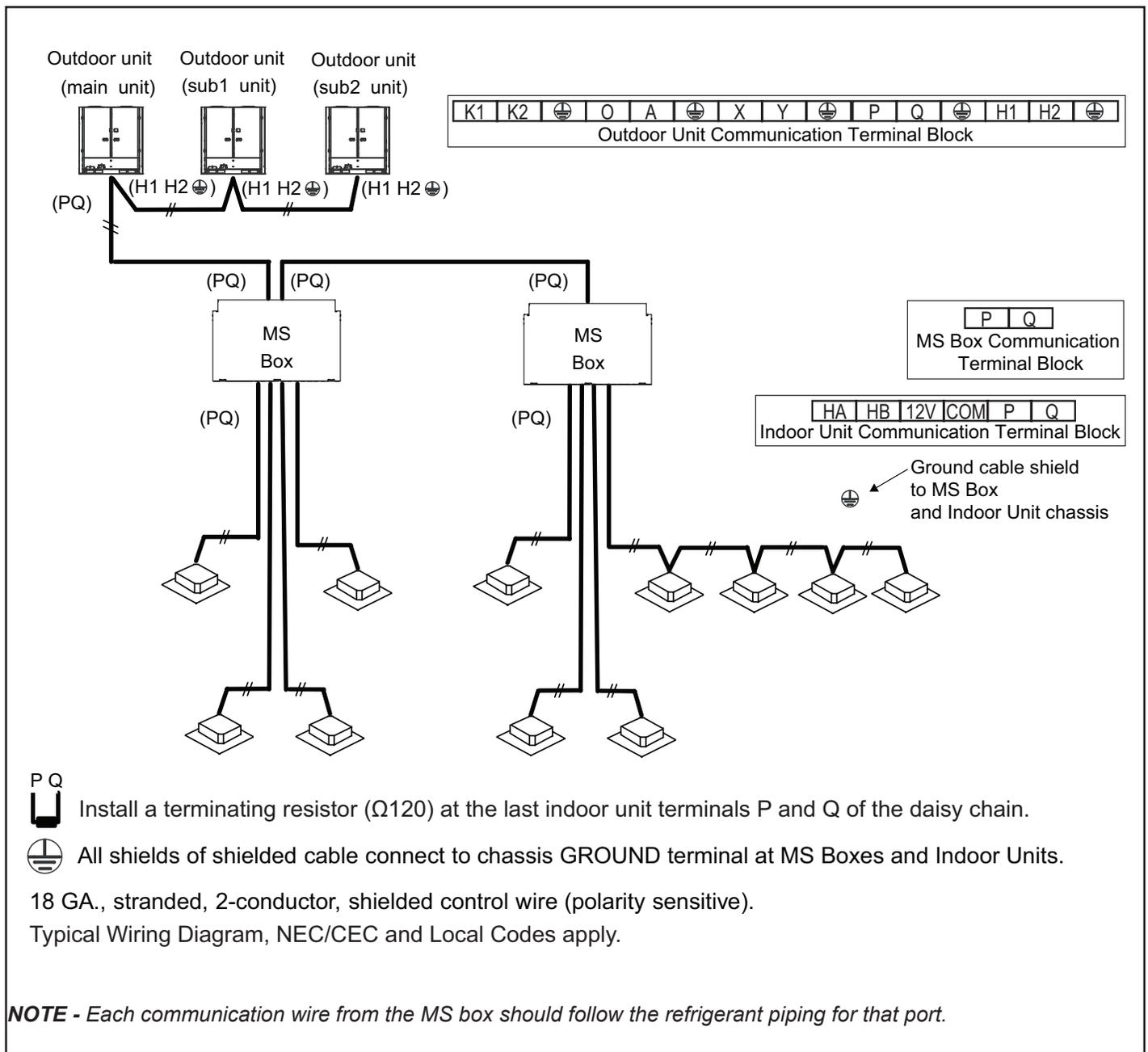


Figure 16. Typical Communication Wiring Diagram (VRF Heat Recovery System)

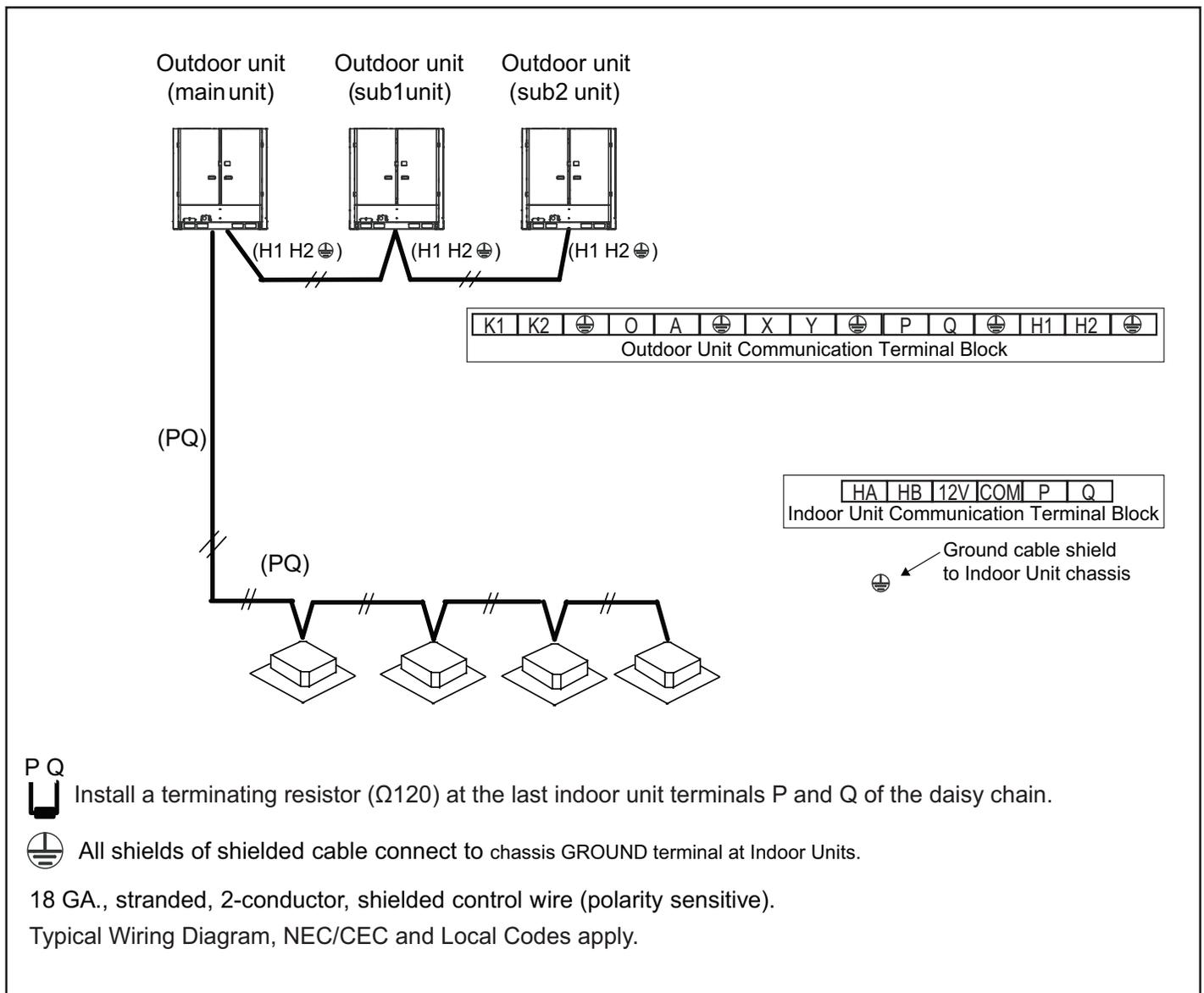


Figure 17. Typical Communication Wiring Diagram (VRF Heat Pump System)

Tightening torque for the terminal screws

- Use the correct screwdriver for fighting the terminal screws. If the screwdriver blade is too small, the head of the screw might be damaged, and the screw will not be properly tightened.
- If the terminal screws are over tightened, screws might be damaged.
- Refer to the Table 3 for the tightening torque of the terminal screws.
- After wiring, confirm all connections are correct; Then turn on power supply to the unit.

Table 3. Terminal Screw Tightening Torque

	Tightening torque (lb-ft)
Terminal base of remote controller/Signal transmission wire (X2M)	0.58-0.72
Terminal base of power supply (X1M)	0.87-1.06
Grounding terminal (M4)	1.06-1.43

! IMPORTANT

DO NOT adjust DIP switch settings. Settings may only be adjusted by a trained technician as part of the commissioning procedures.

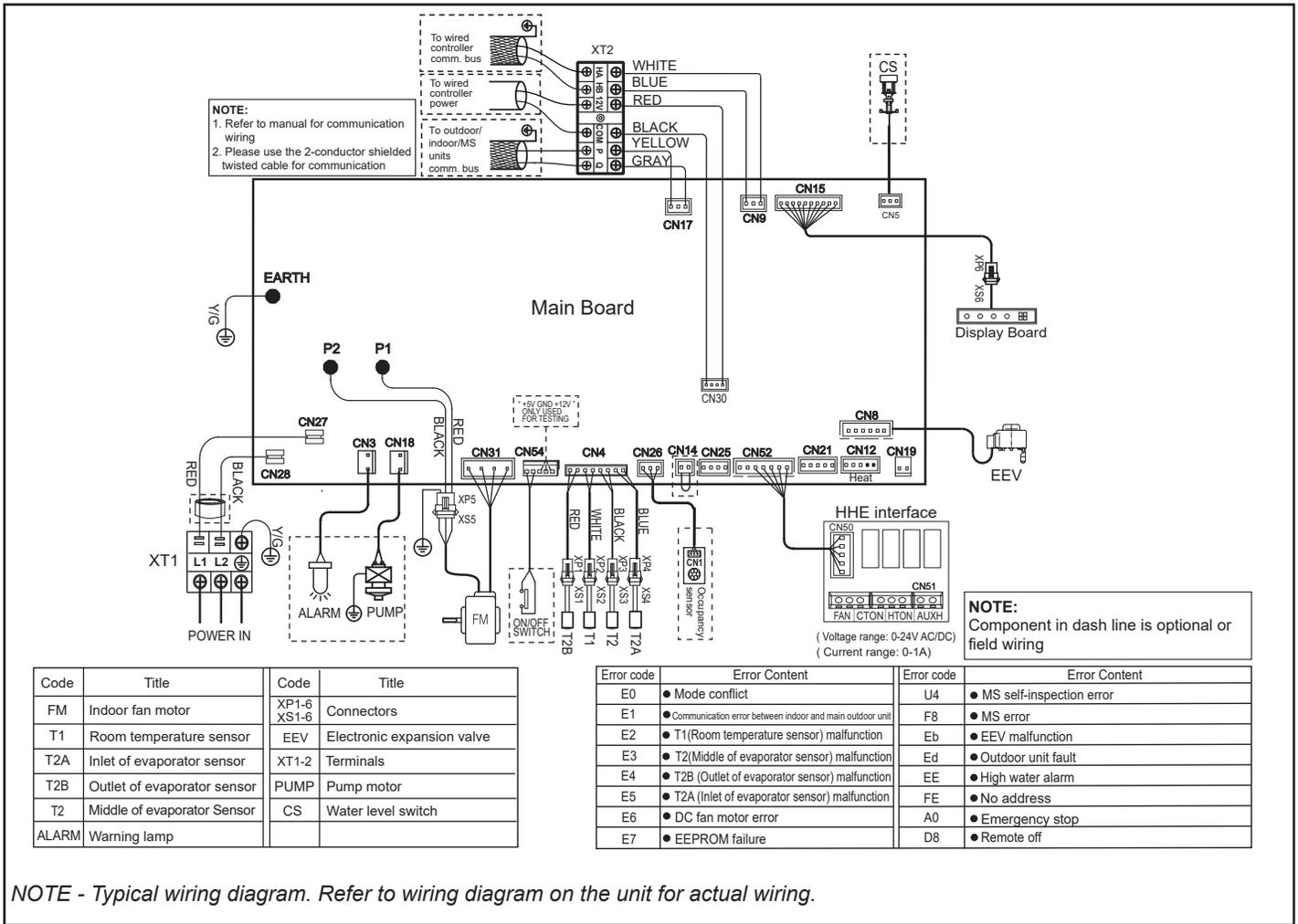


Figure 18. VVCB Typical Wiring Diagram

Electrical Data

VVCB012H4

Description		Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Blower Speed		
		Volt	kW	¹ Btuh				Low	Medium	High
5 kW	V8EH0050P-1P (13P59)	208	3.8	12,800	1.2	24.5	30	•	•	•
		220	4.2	14,300	1.2	25.5	30	•	•	•
		230	4.6	15,700	1.2	26.5	30	•	•	•
		240	5.0	17,100	1.2	27.5	30	•	•	•

VVCB018H4

Description		Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Blower Speed		
		Volt	kW	¹ Btuh				Low	Medium	High
5 kW	V8EH0050P-1P (13P59)	208	3.8	12,800	3.0	26.8	30	•	•	•
		220	4.2	14,300	3.0	27.8	30	•	•	•
		230	4.6	15,700	3.0	28.8	30	•	•	•
		240	5.0	17,100	3.0	29.8	30	•	•	•
7.5 kW	V8EH0080P-1P (13P63)	208	5.6	19,200	3.0	37.8	⁴ 40	⁵ _ _ _	•	•
		220	6.3	21,500	3.0	39.8	⁴ 40	⁵ _ _ _	•	•
		230	6.9	23,500	3.0	41.8	45	⁵ _ _ _	•	•
		240	7.5	25,600	3.0	42.8	45	⁵ _ _ _	•	•

VVCB024H4

Description		Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Blower Speed		
		Volt	kW	¹ Btuh				Low	Medium	High
5 kW	V8EH0050P-1P (13P59)	208	3.8	12,800	3.0	26.8	30	•	•	•
		220	4.2	14,300	3.0	27.8	30	•	•	•
		230	4.6	15,700	3.0	28.8	30	•	•	•
		240	5.0	17,100	3.0	29.8	30	•	•	•
7.5 kW	V8EH0080P-1P (13P63)	208	5.6	19,200	3.0	37.8	⁴ 40	⁵ _ _ _	•	•
		220	6.3	21,500	3.0	39.8	⁴ 40	⁵ _ _ _	•	•
		230	6.9	23,500	3.0	41.8	45	⁵ _ _ _	•	•
		240	7.5	25,600	3.0	42.8	45	⁵ _ _ _	•	•
10 kW	V8EH0100P-1P (13P64)	208	7.5	25,600	3.0	48.8	⁴ 50	⁵ _ _ _	•	•
		220	8.4	28,700	3.0	51.8	60	⁵ _ _ _	•	•
		230	9.2	31,400	3.0	53.8	60	⁵ _ _ _	•	•
		240	10.0	34,100	3.0	55.8	60	⁵ _ _ _	•	•

VVCB030H4

Description		Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Blower Speed		
		Volt	kW	¹ Btuh				Low	Medium	High
5 kW	V8EH0050P-1P (13P59)	208	3.8	12,800	3.0	26.8	30	•	•	•
		220	4.2	14,300	3.0	27.8	30	•	•	•
		230	4.6	15,700	3.0	28.8	30	•	•	•
		240	5.0	17,100	3.0	29.8	30	•	•	•
7.5 kW	V8EH0080P-1P (13P63)	208	5.6	19,200	3.0	37.8	⁴ 40	⁵ ---	•	•
		220	6.3	21,500	3.0	39.8	45	⁵ ---	•	•
		230	6.9	23,500	3.0	41.8	45	⁵ ---	•	•
		240	7.5	25,600	3.0	42.8	45	⁵ ---	•	•
10 kW	V8EH0100P-1P (13P64)	208	7.5	25,600	3.0	48.8	⁴ 50	⁵ ---	•	•
		220	8.4	28,700	3.0	51.8	60	⁵ ---	•	•
		230	9.2	31,400	3.0	53.8	60	⁵ ---	•	•
		240	10.0	34,100	3.0	55.8	60	⁵ ---	•	•

VVCB036H4

Description		Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Blower Speed		
		Volt	kW	¹ Btuh				Low	Medium	High
5 kW	V8EH0050P-1P (13P59)	208	3.8	12,800	4.2	28.3	⁴ 30	•	•	•
		220	4.2	14,300	4.2	29.3	⁴ 30	•	•	•
		230	4.6	15,700	4.2	30.3	35	•	•	•
		240	5.0	17,100	4.2	31.3	35	•	•	•
7.5 kW	V8EH0080P-1P (13P63)	208	5.6	19,200	4.2	39.3	⁴ 40	•	•	•
		220	6.3	21,500	4.2	41.3	45	•	•	•
		230	6.9	23,500	4.2	42.3	45	•	•	•
		240	7.5	25,600	4.2	44.3	45	•	•	•
10 kW	V8EH0100P-1P (13P64)	208	7.5	25,600	4.2	50.3	60	⁶ ---	•	•
		220	8.4	28,700	4.2	53.3	60	⁶ ---	•	•
		230	9.2	31,400	4.2	55.3	60	⁶ ---	•	•
		240	10.0	34,100	4.2	57.3	60	⁶ ---	•	•

VVCB048H4

Description		Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity		³ Maximum Overcurrent Protection		⁵ Single Point Power Source		Blower Speed		
		Volt	kW	¹ Btuh		Ckt 1	Ckt 2	Ckt 1	Ckt 2	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Low	Medium	High
5 kW	V8EH0050P-1P (13P59)	208	3.8	12,800	4.2	28.3	---	⁴ 30	---	---	---	•	•	•
		220	4.2	14,300	4.2	29.3	---	⁴ 30	---	---	---	•	•	•
		230	4.6	15,700	4.2	30.3	---	35	---	---	---	•	•	•
		240	5.0	17,100	4.2	31.3	---	35	---	---	---	•	•	•
7.5 kW	V8EH0080P-1P (13P63)	208	5.6	19,200	4.2	39.3	---	⁴ 40	---	---	---	•	•	•
		220	6.3	21,500	4.2	41.3	---	45	---	---	---	•	•	•
		230	6.9	23,500	4.2	42.3	---	45	---	---	---	•	•	•
		240	7.5	25,600	4.2	44.3	---	45	---	---	---	•	•	•
10 kW	V8EH0100P-1P (13P64)	208	7.5	25,600	4.2	50.3	---	60	---	---	---	•	•	•
		220	8.4	28,700	4.2	53.3	---	60	---	---	---	•	•	•
		230	9.2	31,400	4.2	55.3	---	60	---	---	---	•	•	•
		240	10.0	34,100	4.2	57.3	---	60	---	---	---	•	•	•
15 kW	V8EH0150P-1P (13P75)	208	11.3	38,400	4.2	50.3	23.1	60	⁴ 30	73.4	80	⁶ ---	•	•
		220	12.6	43,000	4.2	53.3	24.1	60	⁴ 30	77.4	80	⁶ ---	•	•
		230	13.8	47,000	4.2	55.3	25.1	60	⁴ 30	80.4	90	⁶ ---	•	•
		240	15.0	51,000	4.2	57.3	26.1	60	30	83.4	90	⁶ ---	•	•
20 kW	V8EH0200P-1P (13P76)	208	15.0	51,200	4.2	50.3	45.1	60	⁴ 50	95.4	100	⁶ ---	•	•
		220	16.8	57,300	4.2	53.3	48.1	60	⁴ 50	101.4	110	⁶ ---	•	•
		230	18.4	62,700	4.2	55.3	50.1	60	⁴ 60	105.4	110	⁶ ---	•	•
		240	20.0	68,200	4.2	57.3	52.1	60	60	109.4	110	⁶ ---	•	•

VVCB54H4

Description		Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity		³ Maximum Overcurrent Protection		⁵ Single Point Power Source		Blower Speed		
		Volt	kW	¹ Btuh		Ckt 1	Ckt 2	Ckt 1	Ckt 2	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Low	Medium	High
5 kW	V8EH0050P-1P (13P59)	208	3.8	12,800	5.7	30.2	---	⁴ 35	---	---	---	•	•	•
		220	4.2	14,300	5.7	31.2	---	⁴ 35	---	---	---	•	•	•
		230	4.6	15,700	5.7	32.2	---	35	---	---	---	•	•	•
		240	5.0	17,100	5.7	33.2	---	35	---	---	---	•	•	•
7.5 kW	V8EH0080P-1P (13P63)	208	5.6	19,200	5.7	41.2	---	⁴ 45	---	---	---	•	•	•
		220	6.3	21,500	5.7	43.2	---	45	---	---	---	•	•	•
		230	6.9	23,500	5.7	44.2	---	45	---	---	---	•	•	•
		240	7.5	25,600	5.7	46.2	---	50	---	---	---	•	•	•
10 kW	V8EH0100P-1P (13P64)	208	7.5	25,600	5.7	52.3	---	60	---	---	---	•	•	•
		220	8.4	28,700	5.7	55.3	---	60	---	---	---	•	•	•
		230	9.2	31,400	5.7	57.3	---	60	---	---	---	•	•	•
		240	10.0	34,100	5.7	59.3	---	60	---	---	---	•	•	•
15 kW	V8EH0150P-1P (13P75)	208	11.3	38,400	5.7	52.3	23.1	60	⁴ 30	75.4	80	⁶ ---	•	•
		220	12.6	43,000	5.7	55.3	24.1	60	⁴ 30	79.4	80	⁶ ---	•	•
		230	13.8	47,000	5.7	57.3	25.1	60	⁴ 30	82.4	90	⁶ ---	•	•
		240	15.0	51,000	5.7	59.3	26.1	60	30	85.4	90	⁶ ---	•	•
20 kW	V8EH0200P-1P (13P76)	208	15.0	51,200	5.7	52.3	45.1	60	⁴ 50	97.4	100	⁶ ---	•	•
		220	16.8	57,300	5.7	55.3	48.1	60	⁴ 50	103.4	110	⁶ ---	•	•
		230	18.4	62,700	5.7	57.3	50.1	60	⁴ 60	107.4	110	⁶ ---	•	•
		240	20.0	68,200	5.7	59.3	52.1	60	60	111.4	125	⁶ ---	•	•

VVCB60H4

Description	Input			Blower Motor Full Load Amps	² Minimum Circuit Ampacity		³ Maximum Overcurrent Protection		⁵ Single Point Power Source		Blower Speed		
	Volt	kW	¹ Btuh		Ckt 1	Ckt 2	Ckt 1	Ckt 2	² Minimum Circuit Ampacity	³ Maximum Overcurrent Protection	Low	Medium	High
5 kW V8EH0050P-1P (13P59)	208	3.8	12,800	6.0	30.5	---	⁴ 35	---	---	---	•	•	•
	220	4.2	14,300	6.0	31.5	---	⁴ 35	---	---	---	•	•	•
	230	4.6	15,700	6.0	32.5	---	35	---	---	---	•	•	•
	240	5.0	17,100	6.0	33.5	---	35	---	---	---	•	•	•
7.5 kW V8EH0080P-1P (13P63)	208	5.6	19,200	6.0	41.6	---	⁴ 45	---	---	---	•	•	•
	220	6.3	21,500	6.0	43.6	---	45	---	---	---	•	•	•
	230	6.9	23,500	6.0	44.6	---	45	---	---	---	•	•	•
	240	7.5	25,600	6.0	46.6	---	50	---	---	---	•	•	•
10 kW V8EH0100P-1P (13P64)	208	7.5	25,600	6.0	52.6	---	60	---	---	---	•	•	•
	220	8.4	28,700	6.0	55.6	---	60	---	---	---	•	•	•
	230	9.2	31,400	6.0	57.6	---	60	---	---	---	•	•	•
	240	10.0	34,100	6.0	59.6	---	60	---	---	---	•	•	•
15 kW V8EH0150P-1P (13P75)	208	11.3	38,400	6.0	52.6	23.1	60	⁴ 30	75.7	80	⁶ ---	•	•
	220	12.6	43,000	6.0	55.6	24.1	60	⁴ 30	79.7	80	⁶ ---	•	•
	230	13.8	47,000	6.0	57.6	25.1	60	⁴ 30	82.7	90	⁶ ---	•	•
	240	15.0	51,000	6.0	59.6	26.1	60	30	85.7	90	⁶ ---	•	•
20 kW V8EH0200P-1P (13P76)	208	15.0	51,200	6.0	52.6	45.1	60	⁴ 50	97.7	100	⁶ ---	•	•
	220	16.8	57,300	6.0	55.6	48.1	60	⁴ 50	103.7	110	⁶ ---	•	•
	230	18.4	62,700	6.0	57.6	50.1	60	⁴ 60	107.7	110	⁶ ---	•	•
	240	20.0	68,200	6.0	59.6	52.1	60	60	111.7	125	⁶ ---	•	•

NOTE - Circuit 1 Minimum Circuit Ampacity includes the Blower Motor Full Load Amps.

¹ Electric heater capacity only - does not include additional blower motor heat capacity.

² Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F.

³ HACR type breaker or fuse.

⁴ Electric heat is rated at 240V. If voltage is less than 240V installer must supply different circuit breaker as shown in the tables. Installer must also size wiring based on reduced voltage for proper installation.

⁵ Single point power source breaker for unit with 15 and 20 kW electric heat is not furnished and must be field provided.

⁶ Do not operate fan on low speed when V8EH Electric Heat Kit is used with VVC* air handler.

REPLACEMENT CIRCUIT BREAKERS

Voltage	Description	Catalog No.
208/240V - 1 Phase	25 amp, 2 pole	41K13
	30 amp, 2 pole	17K70
	40 amp, 2 pole	49K14
	50 amp, 2 pole	41K12

Airflow Performance

Model Number	Nominal Cooling	Motor Speed	External Static Pressure-In. W. G. [Pa]									
			CFM	0(0)	0.1(25)	0.2(50)	0.3(75)	0.4(100)	0.5(125)	0.6(150)	0.7(175)	0.8(200)
				W	W	W	W	W	W	W	W	W
12	1 Ton	L	360	13	25	37	48	60	72	83	98	112
		M	365	13	25	35	48	60	72	83	98	111
		H	430	19	31	43	55	69	82	95	106	120
18	1.5 Ton	L	460	13	29	45	56	69	83	98	114	127
		M	550	26	39	56	69	85	97	115	130	146
		H	650	39	54	68	87	102	117	131	149	168
24	2 Ton	L	600	34	48	62	81	95	109	126	142	161
		M	730	51	68	85	101	121	136	154	170	187
		H	800	75	94	112	130	149	169	192	214	235
30	2.5 Ton	L	750	54	70	87	103	118	136	157	171	191
		M	870	83	103	121	142	159	182	195	217	239
		H	1000	119	142	164	185	212	233	257	286	304
36	3 Ton	L	900	52	73	92	119	157	184	215	244	272
		M	1050	85	108	131	158	186	211	262	303	342
		H	1200	127	155	180	214	240	276	307	339	381
48	4 Ton	L	1120	105	132	155	183	210	236	270	309	377
		M	1360	178	209	239	269	302	333	368	410	453
		H	1650	288	333	372	407	445	480	533	586	627
54	5 Ton	L	1260	147	177	200	234	260	297	331	359	398
		M	1530	256	293	327	363	403	439	491	526	578
		H	1800	405	459	511	557	605	653	689	687	685
60	5.5 Ton	L	1350	140	169	195	227	260	290	332	369	413
		M	1650	237	274	320	352	395	432	476	522	577
		H	1970	400	453	495	538	595	648	689	687	684

Air Filter

! WARNING

Do not operate the system without filters. A portion of the dust entrained in the air may temporarily lodge in the duct runs and at the supply registers. Any circulated dust particles could be heated and charred by contact with the air handler elements.

This residue could soil ceilings, walls, drapes, carpets and other articles in the house.

Soot damage may occur with filters in place, when certain types of candles, oil lamps or standing pilots are burned.

The VVCB air filter is field-provided and installed. Follow these guidelines when selecting and installing the filter.

- External filter or other means of filtration is required.
- Filter application and placement are critical to airflow, which may affect the heating and cooling system performance. Reduced airflow can shorten the life of the system's major components, such as motor, limits, elements, heat relays, evaporator coil or compressor. Consequently, we recommend that the return air duct system have only one filter location. For systems with a return air filter grille or multiple filter grilles, can have a filter installed at each of the return air openings.
- If adding high efficiency filters or electronic air filtration systems, it is very important that the air flow is not reduced. If air flow is reduced the overall performance and efficiency of the unit will be reduced.
- When sizing the return air filter grille, a minimum surface area of 200 sq. in. per ton is recommended.

! IMPORTANT

Do not double filter the return air duct system. Do not filter the supply air duct system. This will change the performance of the unit and reduce airflow.

Air Filter Removal

1. Remove screws, remove filter cabinet cover. See Figure 19.
2. Remove air filter.
3. Clean the air filter using vacuum or water. For heavy accumulations, use soft brush and mild detergent. See Figure 20.
4. Dry filter completely before use.

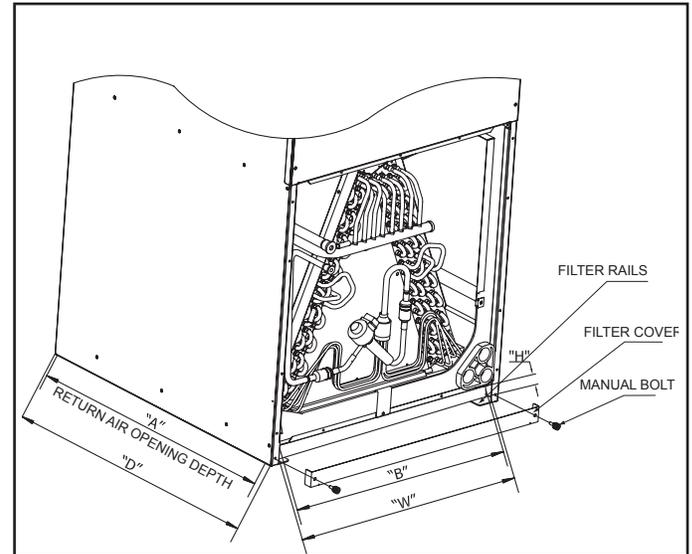


Figure 19. Air Filter Location

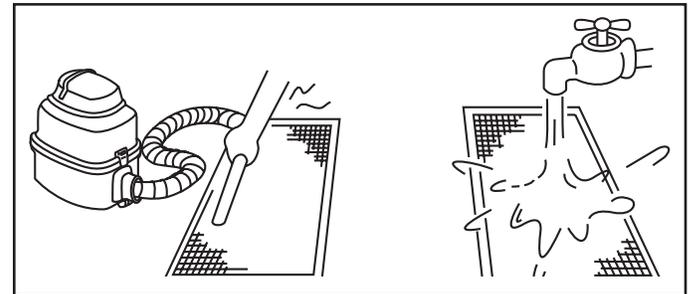


Figure 20. Air Filter Cleaning

Table 4. Space Allowance for Filter Installation Table

Model	Filter Size	Width	Depth	Height
12/18/24/30	18x20 in (457 x 508 mm)	18-1/4 in (464 mm)	21-5/8 in (549 mm)	1 in (25.4 mm)
36/48/54/60	20x22 in (508x559 mm)	20-3/4 in (527 mm)	24 in (610 mm)	1 in (25.4 mm)

Mounting the Receiver

The VVCB unit receiver must be field-connected and mounted. Mounting slots are available inside of the electrical control box.

1. Remove receiver from accessories package.
2. Insert the two fixed plastic mounting brackets on the back of the receiver into the two slots inside of the electrical control box and slide to secure it. See Figure 21.
3. Connect the 10-conductor wire of the receiver to the unit control board.

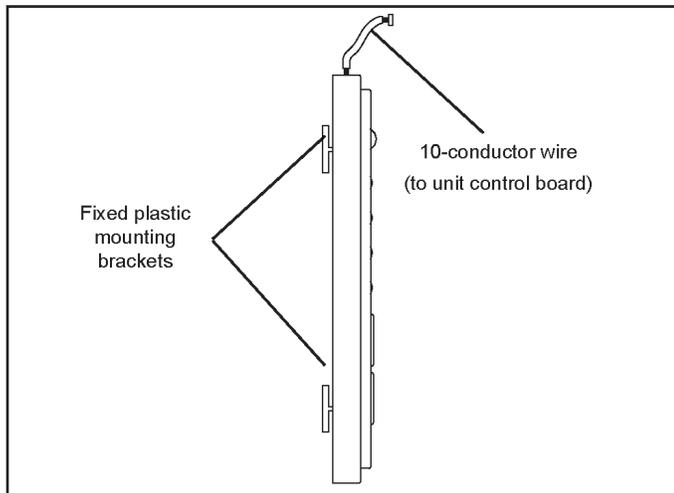


Figure 21. Receiver

Network Address and Commissioning

After the system has been installed, each indoor unit must be assigned an address as part of the commissioning procedure.

Spot Check Instructions

Use the Spot Check Performance Identification Table below and the Manual button on the unit receiver to view diagnostic information the indoor unit.

Table 5. Spot Check Performance Identification Table

No.	Content	Recorded Value/Date
0	Normal display	
1	Communication address of indoor unit	
2	Indoor unit capacity (horsepower)	
3	Network address of indoor unit	
4	The actual setpoint temperature	
5	The actual indoor temperature T1	
6	The middle coil temperature T2	
7	The coil inlet temperature T2A	
8	The coil outlet temperature T2B	
9	The actual superheat temperature	
10	The actual subcool temperature	
11	Error Code	
12	Indoor software version	
13	End (--)	

This Spot Check Performance Table is located on the unit service panel.
The diagnostic information can also be obtained using the wired remote controller.

Troubleshooting

Digital Display

The indoor unit is equipped with a receiver that has a digital display that provides an error code. Refer to the Table below to view the error codes. The error code will replace the temperature setting displayed on the receiver. If more than one error has occurred, the codes will alternate so that all codes are shown.

Make note of the code (E1, EE, etc.), then reset the display by pressing the ON/OFF button on the unit controller. Press the ON/OFF button a second time to reapply power to unit. If the code is still displayed, disconnect and restore power at the unit disconnect switch or circuit breaker. If the problem was temporary, the code will not reappear. If the error code reappears after power has been broken and restored at the disconnect switch or circuit breaker, call VRF Technical Support 1-844-438-8731.



Figure 23. Receiver/Display

Table 6. Fault Code Display on Indoor Unit Receiver

Error Code	Description
FE	No address
E0	Mode conflict
E1	Communication error between indoor and main outdoor unit
E2	T1 (Room temperature sensor) malfunction
E3	T2 (Middle of evaporator sensor) malfunction
E4	T2B (Outlet of evaporator sensor) malfunction
E5	T2A (Inlet of evaporator sensor) malfunction
E6	DC fan motor error
E7	EEPROM failure
Eb	EEV malfunction
Ed	Outdoor unit Fault
EE	High Water Alarm
A0	Emergency stop
D8	Remote off
U4	MS self-inspection error
F8	MS error

Table 7. Fault Code Display on Controller

Error Code	Description
F0	Communication/Address error between indoor units and wired controller
F1	Communication/Wiring error between indoor units and wired controller
E2	Controller temperature sensor error

Technical Support

1-844-GET-VRF1

(1-844-438-8731)

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