

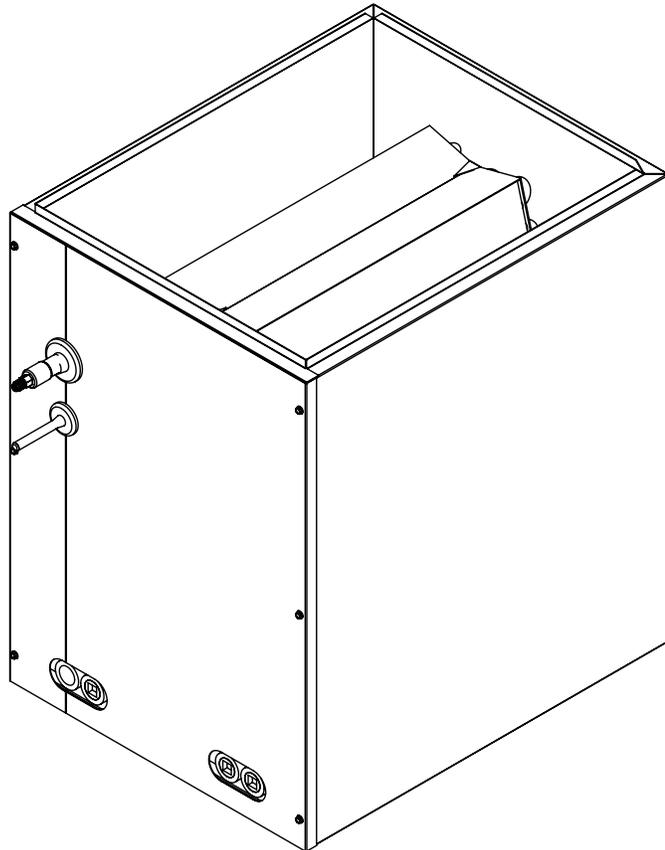


**NATIONAL  
COMFORT  
PRODUCTS**  
HEATING & A/C EQUIPMENT

*Thru-the-Wall Comfort for all types of Multi-Family Construction*

# Installation Guide

NCC Series  
Cased Coil



Please read the Manual prior to starting the installation.  
All phases of this installation must comply with National, State and Local codes.

*Go Thru-the-Wall*

**NATIONAL  
COMFORT  
PRODUCTS**  
HEATING & A/C EQUIPMENT

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**Important:** This Document is customer property and is to remain with this unit.

**DO NOT DESTROY OR THROW AWAY THIS MANUAL.  
IT SHOULD BE KEPT IN A SAFE PLACE FOR FUTURE REFERENCE.**

# NCC Series Cased Coil Installation Instructions

## Safety Warnings!

### **WARNING**

POTENTIAL SAFETY HAZARDS ARE ALERTED USING THE FOLLOWING SYMBOLS. THE SYMBOL IS USED IN CONJUNCTION WITH TERMS THAT INDICATE THE INTENSITY OF THE HAZARD.

### **WARNING**

THIS SYMBOL INDICATES A POTENTIALLY HAZARDOUS SITUATION, WHICH IF NOT AVOIDED, COULD RESULT IN SERIOUS INJURY, PROPERTY DAMAGE, PRODUCT DAMAGE OR DEATH.

### **CAUTION**

THIS SYMBOL INDICATES A POTENTIALLY HAZARDOUS SITUATION, WHICH IF NOT AVOIDED, MAY RESULT IN MODERATE INJURY OR PROPERTY DAMAGE.

### **WARNING**

PRODUCT DESIGNED AND MANUFACTURED TO PERMIT INSTALLATION IN ACCORDANCE WITH LOCAL AND NATIONAL BUILDING CODES. IT IS THE INSTALLER'S RESPONSIBILITY TO ENSURE THAT PRODUCT IS INSTALLED IN STRICT COMPLIANCE WITH THE AFOREMENTIONED CODES. MANUFACTURER ASSUMES NO RESPONSIBILITY FOR DAMAGE (PERSONAL, PRODUCT OR PROPERTY) CAUSED DUE TO INSTALLATIONS VIOLATING REGULATIONS.

### **WARNING**

CERTIFIED TECHNICIANS OR THOSE INDIVIDUALS MEETING THE REQUIREMENTS SPECIFIED BY NATE MAY USE THIS INFORMATION. PROPERTY AND PRODUCT DAMAGE OR PERSONAL INJURY HAZARD MAY OCCUR WITHOUT SUCH BACKGROUND.

### **WARNING**

ALL POWER SOURCES SHOULD BE DISCONNECTED PRIOR TO SERVICING. FAILURE TO DO SO MAY CAUSE PERSONAL INJURY OR PROPERTY DAMAGE.

## Inspection

On receiving the product, visually inspect it for any major shipping related damages. Shipping damages are the carrier's responsibility. Inspect the product labels to verify the model number and options are in accordance with your order. Manufacturer will not accept damage claims for incorrectly shipped product.

## Installation Preparation

Read all the instructions in this guideline carefully while paying special attention to the WARNING and CAUTION alerts. If any of the instructions are unclear, clarify with a certified technician before proceeding. Gather all tools needed for successful installation of the unit prior to beginning the installation. **Note that absence of pressure/charge does not verify a leak. Check coils for leaks prior to installation.**

## Condensate Drain Preparation

National Comfort Products recommends an auxiliary drain pan be provided and installed by the installing contractor, which should be properly sloped, installed according to code, and terminated in an area visible to the home owner. The auxiliary pans provide extra protection to the area under the unit should the primary and secondary drain plug up and overflow.

### **WARNING**

AS EXPRESSED IN OUR PRODUCT WARRANTY; NATIONAL COMFORT PRODUCTS WILL NOT BE BILLED FOR ANY STRUCTURAL DAMAGES CAUSE BY FAILURE TO FOLLOW THIS INSTALLATION REQUIREMENT.

### **CAUTION**

DRAIN LINES FROM THE AUXILIARY DRAIN PAN SHOULD NOT BE CONNECTED TO THE PRIMARY DRAIN LINE OF THE COIL.

### **WARNING**

DO NOT INSTALL COILS WITH PLASTIC DRAIN PANS ON ANY OIL OR DRUM TYPE FURNACES OR APPLICATIONS WHERE TEMPERATURE OF THE DRAIN PAN MIGHT EXCEED 260±5 °F. A METAL PAN SHOULD BE INSTALLED IN THESE APPLICATIONS.

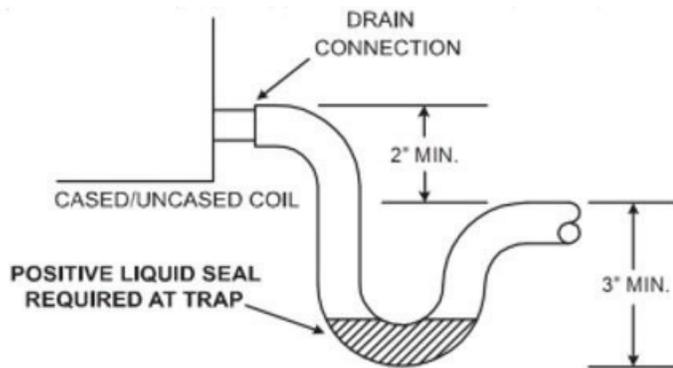
Install coils with the drain pan and/or casing on a flat, level surface. Slope the coil 1/4" towards the drain. Condensate lines must be installed in accordance with building codes. It is the contractor's responsibility to ensure proper condensate drainage at the time of the installation; National Comfort Products bears no responsibility for damages caused by improper condensate management.

**⚠ CAUTION**

SOME COILS HAVE PRIMARY AND SECONDARY DRAIN PORTS ON BOTH SIDES OF THE PAN TO OFFER INSTALLATION FLEXIBILITY, SO ENSURE ALL THREADED PLUGS ARE IN PRESENT AND TIGHTENED IN ANY UNUSED DRAIN PORTS. THESE MAY BE HIDDEN BEHIND THE COIL CASING ACCESS DOOR. FAILURE TO DO SO MAY RESULT IN PROPERTY WATER DAMAGE; IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THESE PLUGS ARE PRESENT AND TIGHT.

The drain lines must be installed with 1/4" per foot pitch to provide free drainage. A condensate trap MUST be installed on the primary drain line to ensure proper drainage of the condensate. The trap must be installed in the drain line below the bottom of the drain pan. Fig. 1 illustrates the typical drain trap installation. Prior to installation, ensure drain pan hole is not obstructed. Additionally, National Comfort Products recommends the drain lines be insulated to prevent sweating and dripping.

Fig. 1



**⚠ CAUTION**

USE TEFLON TAPE TO CONNECT THE DRAIN LINES TO THE THREADS IN THE DRAIN PAN. DO NOT USE SOLVENT BASED PIPE DOPE. THIS WILL REDUCE THE LIFE OF THE PAN.

The drain pan has primary (white) and secondary (red) drain connections. If a secondary drain line is required, it should be run separately from the primary and should terminate in a highly visible location. Condensate disposal through the secondary drain line indicates that the primary drain line is plugged and needs cleaning. If a secondary drain line will not be provided, plug the secondary drain. Drain plugs are NOT to be reused without plumbers tape or putty. Drain line connection should be finger tightened, then turned no more than one complete turn as needed to ensure a firm connection. DO NOT overtighten connection or damage may occur.

### Coil Installation

**⚠ WARNING**

THE COIL IS MANUFACTURED WITH DRY NITROGEN PRE-CHARGE. RELEASE THE PRESSURE THROUGH THE SCHRADER VALVE TEST PORT PRIOR TO INSTALLATION. IF HOLDING PRESSURE IS NOT PRESENT, RETURN COIL TO DISTRIBUTOR FOR EXCHANGE.

Clean coil fins with degreasing agent or mild detergent and rinse fins clean prior to installation. Refer to page 7 for coil cleaning/maintenance guidance.

The refrigerant line sizes should be selected according to the recommendations of the outdoor unit manufacturer.

Care must be taken to ensure all connection joints are burr-free and clean. Failure to do so may increase chances of a leak. It is recommended to use a pipe cutter to remove the spun closed end of the suction line.

To reduce air leakage, rubber grommets may be present where the lines pass through the coil case. To avoid damage, remove grommets prior to brazing by sliding over the lines. Use a quenching cloth or allow the lines to cool before reinstalling the grommets.

Use of wet rags/quenching cloth is highly recommended to prevent weld-related damages to the casing and Schrader valve (if present).

Can be installed in either an upflow or a downflow application.

**⚠ CAUTION**

COIL SHOULD BE INSTALLED ON THE DISCHARGE SIDE OF THE FURNACE

**⚠ CAUTION**

NATIONAL COMFORT PRODUCTS COILS MAY INCLUDE A SCHRADER VALVE ON THE SUCTION MANIFOLD. ENSURE THAT THE SCHRADER VALVE AND VALVE CORE (WHERE PRESENT) ARE PROTECTED FROM HEAT TO PREVENT LEAKAGE.

**⚠ WARNING**

AS MENTIONED ELSEWHERE IN THIS DOCUMENT, IN AN APPLICATION INVOLVING OIL FURNACE A METAL DRAIN PAN MUST BE USED. COILS INSTALLED ON AN OIL FURNACE MUST HAVE A MINIMUM OF SIX INCHES CLEARANCE BETWEEN THE TOP OF THE FURNACE AND BOTTOM OF THE DRAIN PAN.

**Vertical Upflow/Downflow Installation**

**⚠ CAUTION**

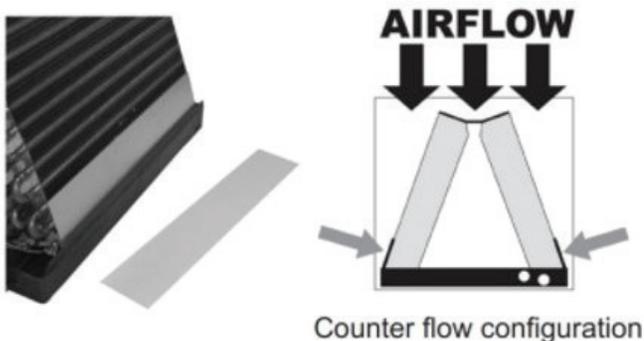
WHEN INSTALLING IN CONJUNCTION WITH A GAS FURNACE IN A VERTICAL ORIENTATION, ENSURE THAT THERE IS 2" GAP BETWEEN THE BOTTOM OF THE DRAIN PAN AND THE OUTLET OF THE FURNACE.!

To set up coils for downflow application, install the two 3" wide by 16" long galvanized metal plates on the outside of the coil, against the fins on each side of the coil as shown in Fig. 5A-3. These plates are supplied with the coil.

**Do NOT exceed 350 cfm/ton of airflow for downflow applications.**

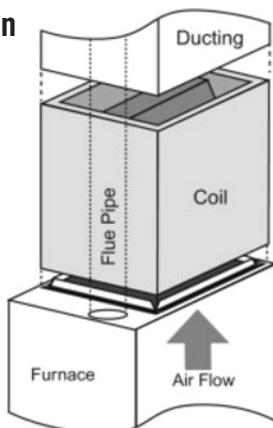
**Fig. 2A**

**Metal Plate location for a Downflow/Counterflow Application**



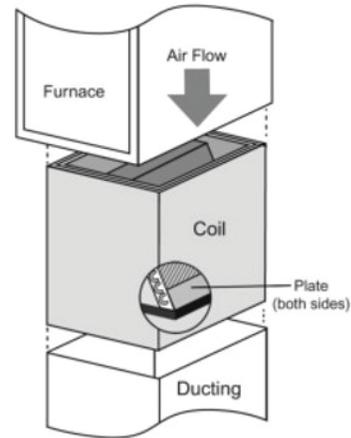
**Fig. 2B**

**Upflow Application**



**Fig. 2C**

**Downflow Application**



**To position the coil on furnace:**

1. Locate the air outlet of the furnace.
2. Adjust flanges accordingly and position the coil over or under the furnace outlet.
3. Place ductwork over the casing.

Refer to Furnace/Air Handler manufacturer literature for specific coil installation guidelines and recommendations

**⚠ CAUTION**

DUE TO HIGHER DESIGNED RADIANT HEAT, A SIX INCH SPACER (PLACED BETWEEN THE FURNACE EXIT AND THE INLET OF THE EVAPORATOR) SHOULD BE INSTALLED WHEN MATCHING UP A NATIONAL COMFORT PRODUCTS COIL WITH AN ULTRALOW NOX (ULN) FURNACE.

**Suction Line Connection**

**⚠ CAUTION**

THE SENSING BULB AND TXV BODY MUST BE PROTECTED FROM OVERHEATING DURING BRAZING. THE SENSING BULB AND TXV BODY MUST BE COVERED USING A QUENCH CLOTH OR WET CLOTH WHEN BRAZING. POINTING THE BRAZING FLAME AWAY FROM THE VALVE AND SENSING BULB PROVIDE PARTIAL PROTECTION ONLY.

**⚠ CAUTION**

SOME NATIONAL COMFORT PRODUCTS COILS MAY INCLUDE A SCHRADER VALVE ON THE SUCTION MANIFOLD. ENSURE THAT THE SCHRADER VALVE AND VALVE CORE (WHERE PRESENT) ARE PROTECTED FROM HEAT TO PREVENT LEAKAGE.

1. Ensure suction line connection joints are burr-free and clean. Failure to do so may increase chances of a leak and introduce contaminants to the system. It is recommended to use a pipe cutter to remove the spun closed end of the suction line.
2. Swedge (or use a field supplied coupler) and braze the field supplied refrigerant suction line tubing to the coil stub using approved industry practices.

**⚠ WARNING**

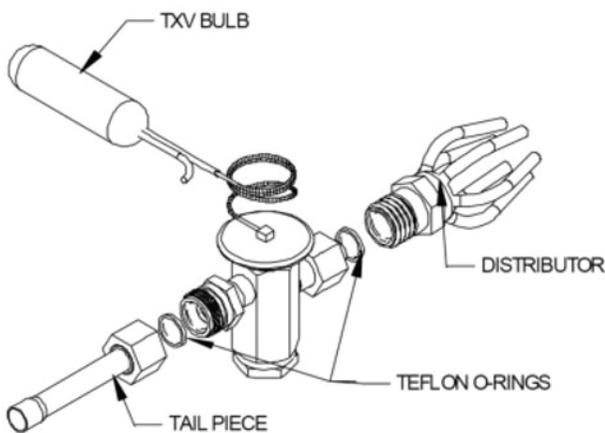
**DO NOT ATTEMPT TO TOUCH BRAZED JOINTS WHILE HOT. SEVERE BURNS MAY RESULT.**

### Metering Device/TXV

National Comfort Products coils are made with a TXV.

**Fig. 3A**

#### Components of a typical TXV assembly



**⚠ WARNING**

**THE SENSING BULB AND TXV BODY MUST BE PROTECTED FROM OVERHEATING DURING BRAZING. THE SENSING BULB AND TXV BODY MUST BE COVERED USING A QUENCH CLOTH OR WET CLOTH WHEN BRAZING. POINTING THE BRAZING FLAME AWAY FROM THE VALVE AND SENSING BULB PROVIDE PARTIAL PROTECTION ONLY.**

### TXV Bulb Horizontal Mounting

The orientation and location of the TXV bulb has a major influence on the system performance.

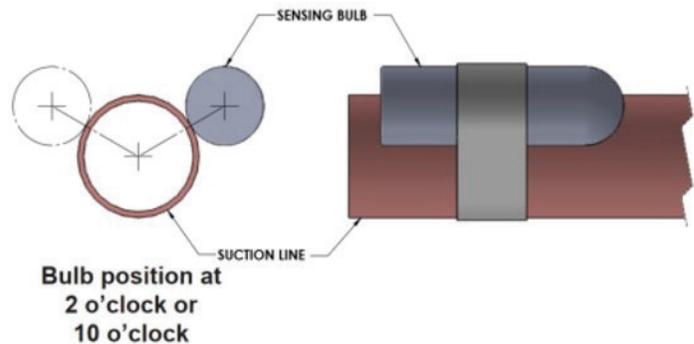
**⚠ CAUTION**

**ENSURE THAT THE TXV BULB IS IN DIRECT CONTACT WITH THE SUCTION/VAPOR LINE. GAP BETWEEN THE BULB AND TUBE SHOULD BE AVOIDED. FAILURE TO DO SO WILL IMPAIR THE PROPER FUNCTIONING OF THE TXV VALVE.**

It is recommended that the TXV bulb be installed parallel to the ground (on a horizontal plane). The bulb position should be at 2 o'clock or 10 o'clock. Fig. 7B-2 shows the recommended position for the TXV bulb installation in the horizontal plane.

**Fig. 3B-1**

#### Recommended location for horizontal TXV bulb mount



The TXV sensing bulb **SHOULD** be mounted on the suction line approximately 6" from the TXV or coil housing using the metal clamp provided. In order to obtain a good temperature reading and correct superheat control, the TXV sensing bulb must conform to **ALL** of the following criteria:

1. The sensing bulb **MUST** be in direct and continuous contact with the suction line.
2. The sensing bulb should be mounted horizontally on the suction line.
3. The sensing bulb **MUST** be mounted at the 2 o'clock or 10 o'clock position on the circumference of the suction line.
4. The sensing bulb **MUST** be insulated from outside air.

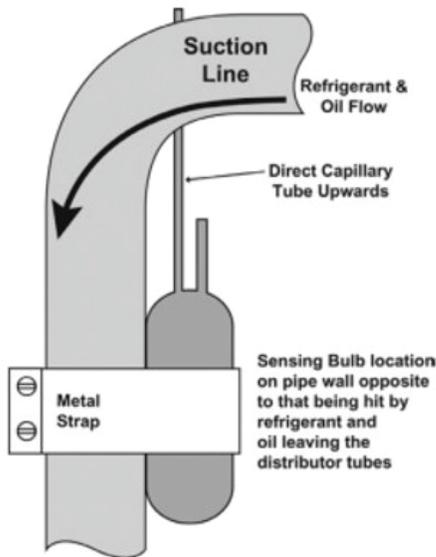
A properly mounted sensing bulb will prevent false readings caused by liquid refrigerant that may have formed inside the suction/vapor line. Insulation will protect the sensing bulb from false readings due to contact with warm air.

Please refer to the installation guide of the outside unit for specific bulb mounting requirements.

## TXV Bulb Vertical Mounting

As recommended in Section 3B-1, the TXV sensing bulb should be mounted in a horizontal plane in relation to the suction/vapor line. However, some installation configurations may require that the sensing bulb be mounted vertically. In this instance, place the bulb opposite the piping wall being hit by refrigerant and oil leaving the distributor tubes, and with capillary tubes directed upwards as shown in Fig. 3B-2.

**Fig. 3B-2**  
**Recommended location for vertical TXV bulb mount**

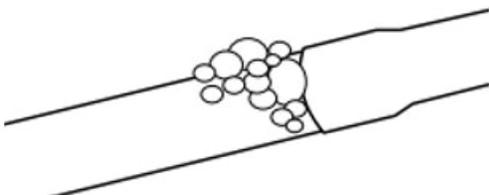


### **CAUTION**

**IF THE TXV SENSING BULB IS MOUNTED VERTICALLY; THE CAPILLARY MUST BE DIRECTED UPWARDS. THE BULB MUST BE MOUNTED ON THE WALL OPPOSITE TO THAT BEING DIRECTLY HIT BY THE REFRIGERANT AND OIL LEAVING THE DISTRIBUTOR TUBES.**

## Leak Check

1. Following outdoor unit manufacturer instructions and recommendations, charge the system with dry nitrogen to a maximum pressure of 150 PSIG.
2. Check all brazed and screw on line connections by applying a soap solution to the joint. A leak will produce bubbles in the soap solution.



3. If any leaks or are discovered, relieve system pressure and repair leaks. Repeat steps 1-3.
4. With no leaks or weak connections present, evacuate the system and charge as per the outdoor unit manufacturer instructions and specifications.

## System Charging

### **CAUTION**

**AN IMPROPERLY CHARGED SYSTEM WILL LIKELY CAUSE LOSS IN SYSTEM PERFORMANCE AND MAY DAMAGE THE COMPRESSOR.**

### **CAUTION**

**REFER TO OUTDOOR UNIT MANUFACTURER CHARGING GUIDELINES AND RECOMMENDATIONS. THE RECOMMENDATIONS GIVEN BELOW ARE GENERAL IN NATURE AND ARE NOT TO SUPERSEDE OUTDOOR UNIT MANUFACTURER SPECIFICATIONS.**

Add refrigerant until the subcooling measured at the indoor unit liquid line matches the subcooling recommendation of the outdoor manufacturer.

## Coil Cleaning Instructions

National Comfort Products cased coils are equipped with a two-piece panel door to allow for cleaning and maintenance access. Remove one or both doors to access the coil for cleaning.

For both copper and aluminum tube coils, it is recommended to flush with the coil with water. There are coil cleaners that are available that contain corrosive chemicals, such as, but not limited to, chlorine and hydroxide, that are not approved for use on National Comfort Products copper and aluminum



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